Gleanings in Bee Culture

ESTABLISHED 1873

CONTENTS

OCTOBER, 1936

Honey Markets	580-581
Groups of Eight—Bruce L. Morehouse	585-589
Wintering Bees in Cellars—E. S. Miller	589-590
Let's Have a Party—Mrs. Benjamin Nielsen	591-592
How Are You Going to San Antonio?—Arlene Weidenkopf	592
Two-Queen vs. Single-Queen Colony Management—C. L. Farrar	593-596
Louisiana's Geo. W. Bohne—E. R. Root	596-598
Study of Pollen Substitutes—Mykola H. Haydak	599-600
High Lights of Delphos Meeting—W. A. Coulter	600
A Confab—E. R. Root	601-603
Single Colony Winter Case—Wm. R. Stephens	604
Wintering Bees in Wisconsin—Harry Lathrop	604-605
Experimental Work with A. F. B.—Phil. A. Shallard	605
More About Hybrid Bees—H. D. Tennent	605-606
Plan to Go to San Antonio—E. R. Root	606-607
Wintering a Baby Nucleus—Luis B. Hockstein	608
Comments on Current Items—J. F. Dunn	608-609
Spinster Jane Says—	609
Editorials	610-612
North, East, West, and South	613-622
Heads of Grain from Different Fields	623-625
Gleaned by Asking—The Editors	626-627
Talks to Beginners—M. J. Deyell	628-629
American Honey Institute Notes	630
Another Golden Wedding Anniversary in The A. I. Root Company	631
Just News	632

Subscription Rates—United States and Canada, one year, $1.00; two years for $1.50; three years for $2.00. Single copy, 10 cents. Other countries, 25c per year additional for postage. Discontinuance—Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of Address—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by postoffice money order, bank draft, express money order or check. Contribution to Gleanings columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. Advertising Rates—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability—While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Entered as second class mail matter at the Postoffice at Medina, Ohio. Published monthly.

THE A. I. ROOT COMPANY, PUBLISHERS, MEDINA, OHIO

E. R. Root and M. J. Deyell, Editors; M. W. Hobart, Assistant Editor; H. H. Root, Associate Editor; D. C. Babcock, Circulation Manager.

XUM

A COMPLETE LINE OF

Honey Containers

Friction-top Pails, 60-lb. Cans, Modernistic, Skep, and Plain Jars, Paper Cases, Cartons, and Wrappers for Comb Honey, Cartons for Shipping Single 60-lb. Cans of Honey, Cartons for Shipping Six 5-lb. Pails of Honey.

Everything you need to market your honey—is carried at our warehouse in Syracuse—the central shipping point of New York, with overnight truck shipment to most points.

5-lb. pails, in lots of 50, $3.45; in lots of 500, $32.00; 1,000 and over, $62.00 per 1000.

Send for our special container price list and booklet, "How to Sell Honey."

We are still rendering old combs and cappings. Send yours to us! We pay the highest market price for wax. Our complete terms will be sent on request.

A. I. Root Co. of Syracuse
Midland Ave. and Tallman St.
SYRACUSE, N. Y.

Serves You Best

WRITE for FREE CATALOG

FACTORY TO YOU
KITSELMAN FENCE

Guaranteed highest quality at lowest prices. Copper-Bearing Steel, 99.92/100% *pure* zinc galvanized. ***Horse-high, Bull-strong, Pig-tight*** Farm Fence; Poultry and Lawn Fence, Steel Posts, Gates, Barb Wire, Paints, Roofing. WE PAY FREIGHT.

KITSELMAN BROTHERS
Box 21 ***Muncie, Indiana.***

DEALERS ATTENTION

We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

falcon
Quality Products

W. T. Falconer Mfg. Company
Falconer, New York

Root Service from
CHICAGO

CONTAINERS
We sell the best makes.

GLASS
Twenty different jars.

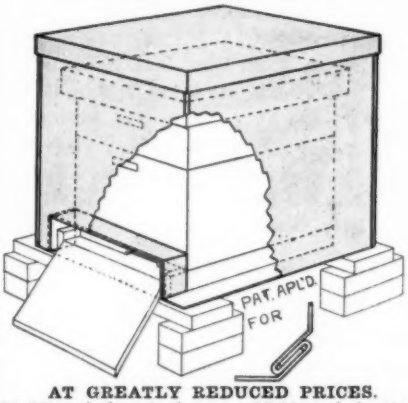
TIN
All customary sizes.

CARTONS, WRAPPERS, CASES
A complete line.

Container price list is free. Get our quotation on your list and save money.

A. I. Root Co. of Chicago
224 West Huron Street
CHICAGO, ILL.

A Proven Winter Packing Case for Bee Hives



AT GREATLY REDUCED PRICES.

$2.65 each for single case, $2.20 each in standard package of five. Limit of 10 cases to each purchaser. Have you had winter losses due to damp insulation? This packing case, made of 28-ga. galvanized steel—each case weighs about 21 pounds—is weather and mouse proof. Many satisfied users. Always ready for use. A great labor and time saver. Quickly assembled by sliding seams and packs away in small space. Should last a lifetime. Made only for 10-frame standard hive and super. Size about 21¾ inches wide, 25½ inches long by 21¾ inches high.

CLARK SPRAY MACHINE CO.,
HARTFORD, OHIO

NOTICE!

Honey Containers

NEW! SAFE! SANITARY!

The following new retail prices cancel our 1936 catalog prices on Tin Containers.

Fresh stock, pure tin soldered pails. A brand new feature that will help sell the honey that you pack in tin.

+

2½-lb. cans, per reship. case of 24	$1.13
2½-lb. cans, per carton of 100	3.90
5-lb. pails, per reship. case of 12	1.03
5-lb. pails, per carton of 50	3.50
10-lb. pails, per reship. case of 6	.82
10-lb. pails, per carton of 50	5.05
60-lb. cans, in bulk, each	.34
60-lb. cans, per case of 2 cans	1.00

+

F. O. B. Boyd, Wisconsin.

+

Orders of $ 50.00— 5% Discount
Orders of 100.00—10% Discount

For a complete list of glass and paper honey containers, refer to our 1936 catalog.

AUGUST LOTZ CO.
BOYD, WISCONSIN

Honey Containers

FRICTION TOP PAILS
2½-lb., 5-lb., and 10-lb. sizes.

5-GALLON TIN CANS
Priced in bulk or in cases of two each.

GLASSWARE
5-oz., 8-oz., 16-oz., 32-oz. and 64-oz. Modernistic, and also one pint round jars.

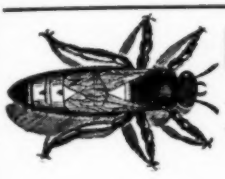
WINDOW CARTONS
Neat and well made, best package for your comb honey.

PAPER CASES FOR COMB HONEY
Holding 24 sections each for 1⅞" sections and 4x5 and 1½" plain sections.

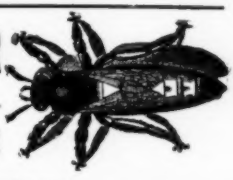
CELLOPHANE WRAPPERS
Both plain and decorated.

TIN PASTE
It sticks, packed in pints, quarts and gallons.

M. H. Hunt & Son
510 N. Cedar St., Lansing, Mich.



IF WE GET TOGETHER,



You Will Save Money!

ULTRA VIOLET RAY TREATED QUEENS

Requeen now for a big crop next season. Produce gentler bees, more prolific queen.

1 to 9	75c each
10 to 24	70c each
25 to 74	65c each
75 to 100	60c each

HONEY

We buy white and amber extracted honey, also Fancy White comb honey.

BEESWAX

We render wax from your old comb at reasonable prices. We work your wax into comb foundation.

Note These Prices

	Lots of 50	Lots of 100
HONEY PAILS AND CANS		
5-lb. Friction Top Pails	$3.15	$6.30
10-lb. Friction Top Pails	4.65	9.30
2½-lb. Friction Top Pails (100 lots only)		5.00
60-lb. New Cans, bulk, lots of 50 or more		.30 each
60-lb. New Cans, bulk, less than 50		.32 each
HONEY JARS		
16-oz. Modernistic Jars, pkd. 2 doz		$0.85 case
48-oz. Modernistic Jars, pkd. 1 doz		.85 case
32-oz. Modernistic Jars, pkd. 1 doz		.80 case
6½-oz. Modernistic Jars, pkd. 2 doz		.70 case
4-oz. Tumblers, pkd. 2 doz		.40 case
CORRUGATED SHIPP'G CASES (for comb honey)		
Holds 24 sections, sizes 4¼x4¼x1⅞ or 4x5x1⅞. Lots of 10 or more		25c each
CELLOPHANE WRAPPERS (for comb honey), Beautiful 3-Color		
For 4¼x4¼x1⅞ sec	$1.00 per 100	$4.50 per 500
For 4¼x4¼x1½ sec	1.00 per 100	4.50 per 500
For 4x5x1⅞ sec	1.10 per 100	5.00 per 500
Paste		65c per quart

WRITE FOR OUR GENERAL PRICE LIST

The Fred W. Muth Co. PEARL AND WALNUT STREETS CINCINNATI, OHIO

The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of September)

California Points: Southern California—The weather has been generally clear with considerable early night and morning fog along the coast and temperatures normal to slightly above. Colonies are still maintaining some brood, which is being stimulated by limited amounts of pollen. Sumac, blue curl, sunflowers and squaw buckwheat are still being visited by the bees. In favorable locations they have secured enough for winter stores, but many colonies will have to be fed to prevent starvation. Some beekeepers have moved colonies to late blue curl areas for winter stores. Honey has been in moderate to light demand. Export demand continued light. Sales by beekeepers in ton lots or more, per lb., f. o. b., southern California delivery points: Orange, extra white to water white, 6½-6¾c, some asking 7c or more; white, 6-6¼c; buckwheat-sage, extra light amber, 5½-5⅝c; light amber, 5½c. The beeswax market is firm at 20-22c per lb. delivered Los Angeles. Imperial Valley—Bees are still bringing in a little honey from athel or tamarisk. Brood is reported to be abundant and young bees numerous. Little inquiry reported during past two weeks, with two large lot sales light amber to extra light amber alfalfa reported at $6.60-6.75 per case of 120 pounds. Central California—Temperatures have been irregular, with several periods of hot weather and with much cooler weather between. Colonies are generally in good shape for wintering, with ample honey and pollen supply. Bees are still working on alfalfa, cotton, blue curl, jack clover, tamarisk, and sunflowers, and in some places on spikeweed. A few bees have been moved recently to cotton fields. Colonies are in better shape for wintering here than further south in the state. Honey has been moving moderately, with beekeepers generally holding for higher prices. The market is firm to slightly stronger. Sales by beekeepers f. o. b. central California delivery points in ton lots or more: Light amber to extra light amber-alfalfa-bean and alfalfa-cotton, 5-5¼c per lb.; amber to light amber mixed flowers, 4-4½c per lb. Northern California: Temperatures have been above normal, with several days of hot weather, followed by cooler weather in most sections. Local showers have fallen. Bees are working on yellow star thistle, alfalfa, turkey mullein, sunflowers and spikeweed, but main flow is over. Crop appears shorter as season develops and will not be up to that of last year. The best colonies in thistle-alfalfa sections averaged 60 pounds to the colony, but the average is not expected to be over 30 pounds. At the 4000-foot elevation in El Dorado County incense cedar honeydew has given a good crop of dark honey. Buyers of honey are actively in the field and trading was moderately active for thistle honey, but beekeepers generally are holding for higher prices. Sales by beekeepers in ton lots or more, per lb., f. o. b., northern California delivery points: Star thistle, extra light amber to white, mostly 5¾c; light amber to extra light amber, 5¼-5½c; thistle-alfalfa, f. o. b. shipping point, white, 6c; extra light amber to white, 5¾c. The beeswax market has been firm with good yellow wax selling at 21-22c per lb. f. o. b. central and northern California delivery points.

Pacific Northwest: West of Cascades—Rain has fallen, especially along the Washington coast and benefited clovers and wild flowers. The fireweed crop is proving very disappointing, not only in western Washington but also in western Oregon, where the flow has been spotted. The summer was too cool for the fireweed flow, and the mountain honey in upper Oregon is said to be chiefly from salal. Bees are working somewhat on thistle, heartsease, dandelion, and on blue curl in the Rogue River Valley. Sales reported delivered Portland, per lb.: White fireweed, 6½-7c; light amber fireweed, 6½c; light amber clover-raspberry, 6c; mixed flowers, 5½-6c. Beeswax is moving lightly but in increasing volume, with Portland receivers paying 20c per lb. delivered. East of Cascades—In the Yakima Valley bees are still bringing in a little nectar from third-cutting alfalfa and fall flowers, with occasional rain prolonging the flow. The market is strong, and beekeepers are generally asking $5.10 per dozen 5-lb. pails, or $5.00 per dozen in 100-case lots. In the Umatilla Valley the crop is spotted. Sales reported of white sweet clover-alfalfa at 5½-5¾c per lb., some 5c with cans furnished, small pails, 6¾-8½c per lb. Sales of white comb reported at $3.10 per case.

Intermountain Region—Inquiries are numerous for car lots of honey or less, though the interest appears to be spotted, some sections reporting that large buyers are anxious to purchase, while others, where fresh fruit is abundant, advise that the demand is not active. Many carlot sales have been reported made during this period, though frequently beekeepers are selling only a portion of their crop and holding the remainder in expectation of higher prices. Little comb honey is available and the comb honey market is especially strong, with some beekeepers obtaining 25 to 50 per cent higher than they did for comb a year ago. Sales reported of several cars of extra white to water white sweet clover-alfalfa at 6-6½c per lb.; white, 5½-6c; some 5¼c with cans furnished; less car lots white to water white, 5½-6c; some water white, 6½c; 60s, 6-8½c; few higher; small pails, 7-9c; few higher, with one large carload in 5-lb. pails at 8½c; light amber to extra light amber, large lots, 5⅛-6¼c, including 1 carlot at 5½c; small pails, 7-8c per lb. White comb reported sold at $2.55-3.50 per case, according to grade, mostly around $3.00. The beeswax market shows an upward tendency, with clean yellow average wax selling at 18c per lb. cash, 21c in trade delivered Denver.

Southwestern States: South central and southwestern Texas—Bees are bringing in enough honey for daily needs, but not enough to produce any surplus. Colonies that were weakened due to cotton poison are beginning to build up and may become sufficiently strong to live over winter. Sales reported light amber mesquite-cotton, 60s, 6c per lb.; small pails, 8c; dark amber honeydew and wild flowers, large lot, 4c per lb.; bulk comb, pails, 10-11c per lb.

Plains Area: Red River Valley of North Dakota and Minnesota—Fairly heavy rainfall over a good portion of this area has put clovers in good shape for winter. As the honey flow has continued bees are in better condition than was anticipated and are still bringing in a little honey in some yards. Colonies generally have adequate brood and sufficient winter stores. Buyers have been active and the market is firm.

Summary—Abnormally warm weather continues in the plains area, and during part of the time from the Mississippi River eastward. The drouth has been further relieved over large areas, though some interior sections of the country have remained extremely dry, especially northern Texas, Oklahoma, and southern In-

diana and Illinois. The frequent rains which have fallen over much of the white clover belt and the sweet clover belt have brought on a fall flow from heartsease, goldenrod, aster, buckwheat, sweet clover and alfalfa, even in sections which previously had been extremely dry, showing how rapidly plants can come back under favorable conditions. A goldenrod, heartsease and aster surplus is looked for in many sections. The rain has also greatly improved prospects of nectar-bearing plants for next year in the drouth area, though more rainfall would still further improve the outlook. New white clover and sweet clover seedings over considerable areas, however, seem to have died out. The buckwheat crop is about 50 per cent of normal in New York, but larger in Pennsylvania. Feeding, it now appears, will not need to be anywhere near as widespread as was feared a few weeks ago, and the large amount of brood rearing which has been going on will still further place colonies in strong condition for winter.

Sales of extracted honey have been heavy, with buyers actively endeavoring to purchase while honey is still available, and with many beekeepers determined to hold for higher prices. Comb honey is scarce and is generally receiving a premium of 25-75c above the prices of a year ago. Beeswax is fully firm. Exports of honey from the country during the past fiscal year totaled 1,655,000 pounds, or a small increase over the figures for the previous year. The United Kingdom took nearly 40 per cent of the total exports, with the Netherlands, Austria and Germany next in line. The United States imported slightly over 4,000,000 pounds of beeswax during the past fiscal year, with Brazil far in the lead among the countries of origin, and with Portugal, Cuba, Dominican Republic, Egypt, Ethiopia, Chile, Mexico, and the United Kingdom all supplying over 100,000 pounds each.

Monthly Report of Honey Producers

Early in September we sent the following questions to honey producers: 1. What is the final average yield per colony to date this season in your locality of (a) extracted honey? (b) comb honey? Give answer in pounds. 2. How does this compare with the average yield for your locality? Give answer in per cent. 3. At what prices has honey been sold or contracted for, if any, in large lots (carload or less) in your locality, during the past month, for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 4. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 5. What is the retail price to consumers in your locality for (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 6. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair, or rapid. 7. What is the condition of the colonies for winter in your locality compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. The answers returned are tabulated as follows:

State. Name.	Compare Av. yield. Ex.	Compare Av. yield. Comb.	Carload lots. aver. yield.	Carload lots. Ex.	Carload lots. Comb.	To grocers. Ex.	To grocers. Comb.	To retailers. Ex.	To retailers. Comb.	Movement.	Cond. of colo.
SC-Ala. (J. M. Cutts)	..	..	100	.06¾	..	.55	..	.65	..	Fair	100
S-Ala. (J. C. Dickman)	..	..	100	..	..	.45	..	.60	..	Slow	100
B. C. (A. W. Finlay)	75	..	130	.10½	..	.78	..	.90	..	Rapid	100
S-Calif. (L. L. Andrews)	40	..	30	.06½	..	..	..	.62	.18	Fair	70
C-Calif. (Davis Bros.)	90	..	100	.05¾	..	.43	..	.55	..	Fair	100
E-Conn. (A. Latham)	75	60	100	..	..	.75	4.50	1.00	.27	Fair	100
C-Conn. (A. W. Yates)	..	..	..	.07	3.75	.70	4.50	1.00	.35	Slow	100
S-Fla. (C. C. Cook)	50	..	100	.06	..	.40	..	.55	..	Fair	100
C-Fla. (H. Hewitt)	125	..	150	..	..	.50	..	.65	..	Fair	100
SE-Ga. (J. J. Wilder)	..	38	90	.07	..	.50	..	.65	..	Fair	100
NC-Ill. (A. L. Kildow)	..	..	..	.06¾	2.50	..	..	.50	.12	Fair	100
NC-Ind. (T. C. Johnson)	75	50	100	..	..	.50	3.60	.65	.20	Fair	100
NW-Ind. (E. S. Miller)	100	60	100	..	..	.50	3.60	.65	.20	Fair	100
W-Iowa. (E. G. Brown)	30	..	20	.06	..	.53	..	.65	.15	Fair	100
S-La. (E. C. Davis)	50	..	50	.06½	..	.35	..	.50	..	Fair	100
N-Me. (O. B. Griffin)	..	30	80	..	..	..	5.00	..	.30	Slow	95
C-Md. (S. G. Crocker)	25	20	50	..	..	.60	3.60	.75	.25	Fair	90
N-Mich. (I. D. Bartlett)	30	..	25	.07½	3.50	.60	4.00	.70	.20	Fair	75
E-Mich (L. S. Griggs)	150	..	150	.08½	..	.45	..	.60	..	Fair	125
S-Mich. (F. Markham)	150	..	100	.07½	3.00	.55	3.25	.75	.20	Fair	100
C-Mich. (E. D. Townsend)	100	..	125	.08	..	..	..	..	..	Fair	100
W-Minn. (B. L. Morehouse)	90	..	80	.07	..	.55	..	.75	..	Fair	100
C-Nebr. (J. H. Wagner)	..	..	..	..	..	.63	3.60	.69	.20	Slow	96
W-Nev. (G. G. Schweis)	75	40	60	.05½	3.00	..	..	..	..	Slow	100
W-N. M. (C. A. Baltzley)	120	..	100	.05¼	2.10	.50	3.00	.65	.20	Rapid	60
NW-N. Y. (G. B. Howe)	75	50	75	.07	4.00	.50	4.25	.70	.25	Fair	100
C-N. Y. (F. W. Lesser)	50	..	70	.07¼	..	..	4.50	.60	.25	Fair	100
SE-N. C. (W. J. Martin)	150	..	100	.06½	..	.65	..	.90	.20	Fair	100
N-Ohio. (J. F. Moore)	125	..	150	.07	3.50	.55	3.60	.75	.18	Fair	100
C-Ohio. (R. D. Hiatt)	85	40	75	.07	..	.57	4.00	.75	.23	Rapid	100
NC-Okla. (C. F. Stiles)	10	..	50	..	..	.45	..	.65	.18	Slow	50
C-Okla. (C. A. Baltzley)	35	20	65	.05½	2.35	.45	3.75	.63	.20	Rapid	75
W-Ore. (H. A. Scullen)	100	..	100	..	..	.40	..	.55	..	Fair	100
SE-Pa. (D. C. Gilham)	60	22	120	..	..	.70	4.00	1.00	.25	Fair	80
SE-Pa. (H. B. Kirk)	80	60	75	.09	..	.67	3.60	.82	.20	Fair	100
NE-S. D. (L. A. Syverud)	20	..	20	..	..	.50	..	.60	.20	Fair	110
E-Tenn. (W. L. Walling)	20	..	50	..	..	..	..	.85	..	Fair	50
C-Texas. (T. A. Bowden)	40	..	110	..	..	.45	..	.55	..	Slow	100
S-Texas. (J. N. Mayes)	65	10	90	.04½	..	.35	..	.42	..	Fair	75
S-Texas. (H. B. Parks)	50	..	100	.05	..	.40	..	.50	..	Fair	100
W-Vt. (P. Crane)	125	65	125	.10	3.75	..	4.50	1.00	.28	Rapid	120
C-Wash. (G. W. B. Saxton)	..	..	..	..	..	.43	..	.49	..	Fair	100
N-W. Va. (W. C. Griffith)	..	..	..	..	..	..	..	..	.20	Slow	..
SE-Wis. (N. E. France)	30	..	20	..	..	..	..	.55	..	..	..

XUM

Oh dear! you're a SWEET child, but too big!
SAY- YOUR COMMUNITY COULD CONSUME OODLES MORE HONEY-
HONEY CROP
Marketing Suggestions
HONEY HARVEST FESTIVAL
WE'LL HELP YOU GET THE BUSINESS.
GRIZ

Increase Your Local Honey Consumption

BY

Developing the Harvest Festival, October 25-31

Sponsoring the Third National Cookery Contest

(It closes November 20) in your OWN town

ALL DETAILS FROM

AMERICAN HONEY INSTITUTE

MADISON, WISCONSIN

Walter T. Kelley.

WAX

Let me work your wax into bee comb foundation. I use the latest design and most improved equipment. I sterilize and filter the wax, exert tons of pressure on my wax sheets, making them the toughest and strongest possible, mill them with the true cell base and the highest possible cell wall. I have spared no expense in equipping my plant to enable me to offer you the best product at the lowest price.

PRICES FOR MANUFACTURING YOUR BEESWAX INTO BEE COMB FOUNDATION

Kind of Foundation:	Cost of Manufacturing, Per Pound			
	10 lbs.	25 lbs.	50 lbs.	100 lbs. or more.
Medium Brood	26c	23c	20c	14c
Thin Super	32c	28c	25c	21c

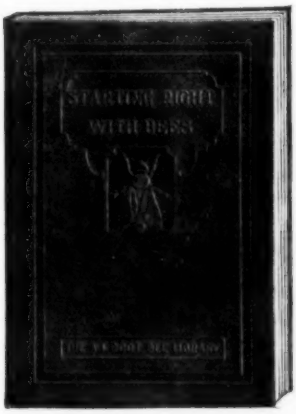
Our prices include milling, papering, and packing. You will have to pay transportation charges both ways in addition. I am also in the cash market for wax. Write for my prices and shipping tags before you dispose of your wax this year. I also manufacture a complete line of soft white pine hives, supers, frames, etc. Write for free catalog.

Walter T. Kelley Co., Paducah, Kentucky

"BETTER-BRED QUEENS" 3-BANDED ITALIANS

50c EACH. DEALERS, 42½c. Orders filled promptly. Before buying next year's queen cages, get our prices. CALVERT APIARIES, CALVERT, ALABAMA.

Help You Make Money from Your Bees



Only 50 Cents
Postpaid

—With one year's subscription to Gleanings in Bee Culture, $1.25.

STARTING RIGHT WITH BEES

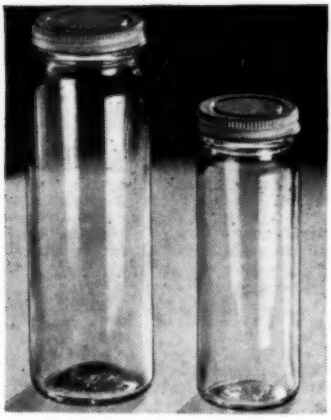
REVISED EDITION
BY E. R. ROOT
98 PAGES—184 ILLUSTRATIONS

This new edition contains the best advice for the beginner. The author discusses the production of both comb and extracted honey, the marketing, wintering of bees, etc.

Here is what one beekeeper writes: "I have a copy of your 'Starting Right With Bees.' It is wonderful and leads a novice on the right stepping stones across a wide creek."—H. M., Jacksonville, Ill.

SEND ORDER TODAY

The A. I. Root Co., Medina, Ohio



Complete Fall List

Forty Items to Help You Sell Honey

Yours for the Asking

- Friction Top Cans and Pails.
- Reshipping Cases.
- Corrugated Containers.
- Five Gallon Square Cans.
- Comb Honey Shipping Cases.
- Comb Honey Wrappers.
- Window Cartons.
- Honey Signs.
- Honey Labels.
- Paper Cups.
- Honey Extractors.
- Glass Jars.
- Mailing Cases.
- Queen Bees.

Send postcard request for this large four-page Fall List which will bring you money saving prices and quality offers.

Write to—

DADANT & SONS

HAMILTON, ILLINOIS

Vol. 64
No. 10

Gleanings in Bee Culture

October
1936

Groups of Eight

BRUCE L. MOREHOUSE

Year-Around Management for Bees, with Distinct Advantage for Outdoor Winter Packing

The covers are left on and sometimes a commercial insulation board is inserted between the covers.

Almost everyone is familiar with the usual arrangement of bee hives in rows, facing south, or sometimes east. We once had long rows of hives, but the arrangement in "groups of eight," which we are now using, is unusual and for us advantageous.

Somebody, somewhere, may have used this or a similar arrangement of hives long years ago, but if so we do not recall seeing it written up in the bee journals. It is not only the grouping of the hives but the attendant management and advantages that we wish to show here.

The General Group Arrangement

When we moved our bees out of the cellar in the spring of 1933, they were placed in groups of eight, two hives facing outward in each of the four cardinal directions. For convenient reference the western hive of the north pair is designated as No. 1 position in the group and so on around counter-clockwise to No. 8 position, which is the eastern hive of the north pair. When it becomes necessary to move a group or yard, we pencil on the metal cover or elsewhere A-1, A-2, etc., so that each hive may be replaced in the same group and position in the new location.

There is room enough between hives to work and a central area about 15 feet across where few bees are flying and where tops, supers or other equipment is placed when working the hives. A summer group is shown on page 472 of the August, 1935, issue of this magazine.

We claim this arrangement enables bees to mark their hive location with greater certainty because of the distinct differences in direction as well as location. And, because of this factor, we believe it helps to keep segregated any colony that might develop bacillus larvae.

The slight advantage of facing colonies East or South so that the bees will go out earlier is likely to be offset by a too-hot condition later in the day, when hives facing North will not be hanging out at

all. Also, hives facing South will lose many bees from flights on bright winter days while bees in hives facing North will not venture out until warmer days come. So, we think it is, after all, a doubtful advantage to have all hives facing East or South. We have not noticed that wild bees are particular about this entrance direction in selecting hollow trees for their abode! Nor have we noticed any special difference in strength or yields of colonies because of the direction in which the hives face.

Octuple Winter Apartments

When fall comes, we pack all eight hives in the central area. Thus, each group becomes an apartment house for eight colonies of bees. The advantages of this wintering arrangement seem obvious. In the first place, it will take far less packing and covering material for eight in a group than to pack eight hives in any other grouping. Second, the packing process for groups of eight consumes very little more time than to pack a less number of hives in a group. Also, if there are eight little bee furnaces closely packed under one well insulated roof, it should be easier for all colonies to keep warm. Four hives abut against their neighbors on two sides while the other four hives are snuggled in with only the front exposed, as shown in the illustrations.

We consider it an advantage if the ground where the group is to be packed is slightly higher than around the group, so that rain and snow water will drain away. Of course, all preliminary fall work has been done, such as seeing to it that each hive is queenright, with plenty of bees, pollen, and honey. Some beekeepers claim that this is the most important part of outdoor wintering. Each hive is supplied with either a half-depth, a shallow extracting super, or a full-depth food-chamber of honey, besides what little is in the brood chamber. We prefer the shallow extracting super as the correct size food chamber for our needs. Our honey flow cuts off early in September and very little nectar comes in until the next May, eight or nine months later. Obviously, a pantry full of food must be supplied to keep the little household from hunger and starvation.

Previously the top body of each hive has been set askew so that there is a small bee entrance on the outside front corner of each pair of hives in the group. By this arrangement the entrances come at the corners of the winter package, about half-way up the hive and as far apart as possible. The entrance block is inserted and a wooden plug makes the bottom-board entrance bee tight. We prefer to do our packing in late October when the weather is cold enough to keep the bees in pretty well. Two men lift a hive at a time back into the winter place, setting it directly on the ground or perhaps raising it only the thickness of a board, and sloping slightly forward as on summer stands.

When all hives are in place an especially constructed fence is brought up close as a wind protection and a sheet of asphalt mulch paper is placed around the group. Ordinary building lath is cut into six-inch lengths and two of these strips are tacked on, one above and one below the entrances to hold the paper tight there. Then the paper is cut off the roll and the ends stuck together with hot asphalt. Six inches of straw is placed on top of the hives, a little wedged in between the hives and the paper, and a wad carefully placed to prevent each corner from breaking the paper. We use flax straw with as much chaff as we can get. Fold the top of the side paper over, asphalting the folds down with a crease where needed, and making as neat a job as possible. This 36-inch wide paper will reach from the ground high enough so that when bent over it will take only one cap sheet to finish the pack. Cut off the cap sheet and start sticking it down along one side; then, pull it taut across and stick down the other side. The ends are stuck down last.

Our object is to make a wind-tight bag for these eight colonies, so we use a round pointed shovel to dig a little trench around the group, banking the earth against the lower edge of the paper and treading it down so no wind can get in underneath. Do not place weights on top of the packages, where moisture may collect. A rounded top is better. We do not expect the paper to last more than one winter.

The last operation is to cut the paper between the slats for the entrances two or three inches long. If the bees want it longer their time is not valuable and they can gnaw a bigger hole in the paper. A very small entrance is sufficient for winter ventilation.

Some beekeepers favor a different kind

of entrance. The one we now use is simple and without cost for materials. A slightly more compact grouping of the eight hives, facing four in one direction and four in the opposite direction, should be possible with the right kind of entrances. This may mean that the four end hives should enter on their sides, or the four end hives may have middle entrances and the other four hives top entrances. Also, a blanket of some good commercial

Below: Note that 1½, 2, and 2½ body hives are in this winter group. Fences are being placed. Paper roll leans against the tree; caldron is at right.

Above: Unpacking the group. Here eight units have wintered economically under one roof, have had flights, and are ready for the flowers. The hoe is used to scrape away the banked earth.

insulating material may be employed instead of the straw and used for many winters. Insulating materials may vary for different sections of the country, according to what is available and needed. There may be possibilities in some sort of screen top with sacking and then straw to allow for slight upward ventilation. Other features may seem desirable and prove advantageous after trial.

The Proof Is That It Works

The worth of this form of winter packing is in the results obtained. In the early spring of 1934, after our first wintering by this method, we had a winter loss of around 5 per cent. Later the spring losses increased this to about 7 per cent. We left the packing on too long, for late in April a hot day came and melted down several colonies. The small winter entrance was not sufficient ventilation for such weather and we have come to the conclusion that in Minnesota the bees should be unpacked by the middle of April. Our winter loss in the spring of 1935 was about 8 per cent, later increasing with spring losses to 13 per cent. This loss was due partly to the feeding difficulties of 1934, a drouth year. Also, every pack in our largest yard was torn open, presumably by cattle, after cold weather set in and it was necessary to repair this damage. This yard had the heaviest loss and so increased the average loss. Two yards had no loss at all.

The winter of 1935-6 was very severe for outdoor packed bees. For 35 days on end the thermometer showed sub-zero readings and down in the twenties and thirties below much of that time. So, beekeepers were doubtful if winter clusters could move far enough in such intense cold to get to frames of honey within the hives. Losses ranged to a hundred per cent. We were dubious of the merits of our new method of packing and awaited with considerable anxiety to know the outcome.

When we counted the "alive" colonies, we found to our surprise only a 2 per cent loss. From one cause or another the total loss up to fruit bloom was 9 per cent, which confirmed our faith in the groups-of-eight packing. With other Minnesota beekeepers suffering larger losses, we felt rather elated over these results.

Now, we do not consider these losses excessive under the circumstances of our limited experience, and especially in con-

XUM

"We once had long rows of hives." This apiary was rearranged at packing time in "Groups of Eight."

sideration of the excellent condition in which many outdoor-wintered colonies come through the winter and build up to strong colonies that may be divided later. Cellar wintering has been practiced a long time while this groups-of-eight method is comparatively new. We believe the principle of managing eight colonies in a group the year around is all right and we are encouraged to continue in this way.

Frequently we make up any group losses through colony increases by an adaptation of the Demuth method of keeping two queens in one hive. The food chamber frequently contains the necessary brood, bees, queen cells, and honey for a top-bottom division, while an additional brood body supplies the needed room for the queen and field bees. Thus, we are able to control swarming tendencies to a degree.

Another advantage in this arrangement is its elasticity. One may pack a less number than eight in a group if that is all there are. One may pack 1½, 2, or 2½ story hives in the same group. However, the food chamber so admirably fits into this wintering practice, that we would not think of doing without it. A half-depth food chamber is used on our Jumbo hives and other colonies are provided with two standard 10-frame bodies the year around. For these colonies, summer manipulations make it necessary to separate the two bodies with excluder and supers. We place a thumb tack in one end of the raised brood chamber to indicate that it is the food-chamber. Sometimes we extract that honey and replace the body for a second filling for winter stores. Our main nectar source is sweet clover and we have very little late fall flow here.

Groups of eight may be assembled from the cellar, with packages, swarms, divisions, or on some cold fall day hives may be arbitrarily assembled in groups, and the changed appearance of things when packed makes the bees mark the new locations.

Packing Accessories Needed

A portable caldron for melting the asphalt is made from a 15-gallon oil drum. Small draft holes for the fire are punched about five inches from the bottom. Two gas pipes run parallel through the drum about eight inches from the top, through which pipes we run a stiff wire to form two handles. The pail with asphalt rests upon these pipes. A rag is wired to the end of a stick for a dauber but this is not entirely satisfactory.

The hinged fence shown is not a packing box, but is used to enable us to handle the paper on windy days. Dimensions are 3'0" x 7'4" for the two longer side pieces and 3'0" x 4'0" for the end pieces.

The cost of wintering in groups of eight is about five cents per colony for paper and asphalt. The time used for packing is a little longer than for hauling by truck to a cellar. However, in the spring we unpack our bees much faster than we could haul an equal number of

bees from a cellar. In the spring the bees are already "on location" when roads are often bad; the covering may be quickly removed, the hives set forward into summer position, entrance plug at the bottom removed, dead bees scraped out, and the colony is all set in exactly its former position.

For years before we adopted groups-of-eight packing we had been looking for a wintering method suitable for our climate. It may be said the groups-of-eight is a doubling up on the wintering package of four hives, with the year around grouping added. We hope that others will adopt this groups-of-eight method of year-around management and improve on it, making public through the beekeeping magazines the results of their experiences.

Montevideo, Minnesota.

Wintering Bees in Cellars

E. S. MILLER

This Method Has Some Distinct Advantages Over Outdoor Wintering

According to reports a number of the larger apiarists in the northern states are abandoning bee cellars. The Wyoming experiment station reports cellar wintering less successful than packing outside and the general trend is said to be away from cellar wintering. These reports indicate that beekeepers in general have not yet learned the art of proper construction and use of bee cellars.

Of course, the ordinary house cellar is entirely unsuited for this use. So, also, are most other cellars unless built especially for wintering bees. If a cellar is properly constructed and conditions are made right, there should be no winter losses aside from those caused by starvation or queenlessness. Here are some of the essentials:

(1) Proper insulation against heat and cold.

(2) Proper ventilation and drainage.

(3) Adequate space per colony.

(4) Early removal of bees in spring.

(5) The cellar must be kept absolutely dark and there should be as little disturbance as possible.

Proper insulation requires that the cellar be placed below ground or embanked

A Michigan bee cellar showing side embankment to control interior temperature. Note the entrance to cellar which has a double door not seen in picture.

to prevent variation of inside temperature. Also, there must be a sufficient amount of insulating material over the top.

Suitable ventilation requires a chimney or other means of creating a draft. A mere opening at the top of an outside cellar is useless and very apt to be harmful, allowing cold air to enter, causing condensation of moisture. A chimney of sufficient height with opening near the floor of the cellar will provide a draft at all times so long as the outside temperature is lower than that inside. The purpose of ventilation is not so much to give the bees air as it is to prevent any accumulation of moisture. An underground tile intake entering near the floor on the side opposite the outlet would tend to temper the air as it enters, though this may not be essential. Except for these openings the room should be made tight.

The amount of room allowed per colony is important. If there are too many colonies for the space occupied, temperature is apt to run too high, causing bees to become restless, especially if there happens to be a warm spell in winter. On the other hand, if only a few bees are kept in a large cellar, temperatures usually fall too low, resulting in an accumulation of moisture. No artificial heating should be resorted to. A cellar 18 x 20 x 7 feet high is about right for 100 colonies, or about 25 cubic feet per colony. With the conditions above mentioned, there should be no difficulty in maintaining a temperature varying not more than two or three degrees above or below 45 degrees Fahrenheit.

Removing Bees at Proper Time in Spring

The practice of leaving the bees in the cellar until pollen and nectar are available in the spring is ill-advised. In the latitude of Chicago bees should be set out as soon after March 15 as weather conditions will permit, preferably on a warm day (temperature above 50 degrees) with no wind; otherwise on a day cool enough so that the bess will not be tempted to fly. As long as there is no brood in the hive, a temperature of 20 to 30 degrees apparently does no harm to a colony outside, if it is of normal strength. If left inside the cellar, moisture condenses within the hives when the weather becomes warm and the bees suffer far more than they would if set out.

For more than thirty years we have practiced inside wintering with a cellar at each of three yards. Two of these are of concrete construction, surmounted by a shop or honey house. The top of the cellar is on a level with the surface of the ground outside. Sawdust is used for insulation between the cellar ceiling and the floor above. The third cellar is of brick underneath a dwelling. The chimneys extend up through the buildings to a height of about 25 feet from the openings at the cellar floor. Double doors and double-boarded windows with packing keep out both the light and the warm or cold air. The bees are stacked up four or five hives high around the outside but not in contact with the walls. Covers and bottoms are left on but entrance blocks are removed, leaving a seven-eighths inch opening. Temperatures remain nearly constant throughout the winter and losses are negligible.

Advantages over outside packing are, fewer losses in wintering, smaller consumption of stores, minimum amount of labor, minimum depreciation of hives, and less danger of losses from pilfering at outyards. A man can carry in a hundred one-story colonies in half a day, shut the doors and the work is done. No further attention is necessary until it is time to take the bees out about March 15.

I am not attempting to speak regarding the best mode of wintering south of central Indiana, nor for beekeepers with only a few colonies. Furthermore, I realize that where one is located temporarily, the construction of a permanent building would not be advisable, but in the northern tier of states, if one owns the land and expects to continue in honey production over a considerable length of time, a good cellar and honey house is certainly a profitable investment.

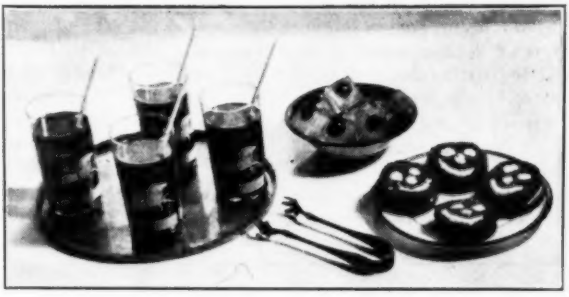
Valparaiso, Indiana.

[It seems to us that the selection of the proper method of wintering bees in the North should be governed by weather conditions that obtain in various regions. Obviously, in the far North cellar wintering is satisfactory. However, in some far northern regions bees are being wintered successfully out of doors, with ample hive insulation and snow protection. As a matter of fact, bees can be wintered in cellars in Mr. Miller's latitude provided cellar conditions are right. Be sure to get the five essential requirements in the second paragraph of this article.—Editor.]

Let's Have a Party

MRS. BENJAMIN NIELSEN

Honey-Way Menus Are Varied and Delicious



Witches' Brew and Funny Face Sandwiches.

All Saints' Eve is the one evening in all the year when smart modernity is thrown aside for customs prankish and parties reminiscent of childhood days. Magazines are replete with suggestions for entertainment and stores offer an endless assortment of appropriate decorations, so let's turn our attention to the refreshments—honey-way ones, of course.

Menu No. 1

Owl salad, cup cakes, Funny Face Sandwiches, Honey Pineapple Sherbet, Witches' Brew.

Owl Salad

The wise old owl obligingly changes his color for this one evening to aid us in carrying out the traditional orange and black color scheme.

Peel and slice oranges of uniform size. Dip slices in warm honey. Moisten cream cheese with orange juice until of proper spreading consistency. For the body of the owl arrange, sandwich fashion, on a bed of crisp lettuce, two slices of orange with cream cheese spread between. Place half slices (honey-dipped) on each side for wings. A small slice makes the head. Shape round eyes from cream cheese, making centers from bits of prune. Cut beak and eyebrows from prunes. Use little squares of orange for feet and perch them on a prune branch.

Bake your favorite Honey Chocolate Cake batter in muffin tins and heap the little cakes lavishly with Honey Icing, tinted orange.

Funny Face Sandwiches

Perhaps you have a favorite sandwich filling to use in making Funny Face Sandwiches. If not, here are a few suggestions:

½ cup finely chopped nuts, 2 tablespoons honey, ½ cup chopped raisins or dates, ¼ cup honey, ½ cup chopped nuts, 1 teaspoon lemon juice, ¼ cup chopped nuts, 2 tablespoons honey, 4 tablespoons peanut butter.

Use brown and white bread, cutting an equal number of slices of each kind. The cover from a pound baking powder can makes a cutter about the right size; a thimble aids in cutting eyes and a sharp knife makes short work of noses and mouths. Place a brown slice and a white slice together, one plain and one with features cut in it for the top, with filling between. Use brown pieces in white faces and white pieces in brown faces. The filling will hold them fast. No two expressions will be exactly alike and they are good for a round of giggles at any party.

Honey Pineapple Sherbet

One cup water, ⅓ cup sugar, 2 or 3 tablespoons of mildly flavored honey,

Honey Orange Sherbet.

grated rind of half a lemon, few grains of salt, 1 cup pineapple juice, ¾ cup crushed pineapple, 2 tablespoons lemon juice, 2 egg whites and orange coloring. Boil sugar, water, honey, rind and salt 2

minutes. Add fruit juices, coloring and pineapple and freeze until mushy. Add beaten egg whites and finish freezing. Serves six.

Witches' Brew

This magic potion is made by pouring 2 cups of boiling water over 4 teaspoons of tea leaves. Strain and add 2 cups orange juice, 1 cup lemon juice, 2 cups cider, 8 cups water and sweeten to taste with honey. Pour over cracked ice. Recipe makes about one gallon.

With the aid of a mechanical refrigerator, some of this mixture may be frozen into cubes in the trays of the freezing compartment. If these cubes are used to ice the beverage, the water in the recipe may be increased to 9 cups.

Honey doughnuts and piping hot honey sweetened coffee.

Appetites are real these chilly evenings and you may wish to serve your guests something a bit more substantial, including steaming hot, honey-sweetened coffee as the beverage.

Menu No. 2

Funny Face Sandwiches, Pumpkin Tarts, Honey Orange Sherbet, Honey Doughnuts, Coffee.

Pumpkin Tarts

Add ⅔ cup of grated cheese to your favorite pie pastry and bake in tart shells. For filling, assemble: one and ¼ cups pumpkin, 3 eggs, ½ cup milk, ¾ cup honey, 1 tablespoon gelatin, ¼ cup cold water, ½ teaspoon each of nutmeg, cinnamon and ginger, and ½ teaspoon salt.

To slightly beaten yolks add pumpkin, honey, milk, salt and spices. Cook until thick in a double boiler. Meanwhile add gelatin to cold water. When softened, add to hot pumpkin mixture. Mix thoroughly and cool. When mixture begins to thicken, fold in stiffly beaten egg whites. Pour into tart shells and chill thoroughly. When ready to serve top each part with a spoonful of whipped cream slightly sweetened with honey, hollow out a small place in center of the cream and fill with honey.

To make the Honey Orange Sherbet, follow the recipe for Honey Pineapple Sherbet, substituting orange juice for the pineapple juice and omitting the orange coloring.

Honey Doughnuts

Two tablespoonfuls butter or cooking oil, ⅔ cup sugar, ⅓ cup honey, 2 eggs, ¾ cup milk, 3 cups pastry flour, ½ teaspoon salt, 4 teaspoons baking powder and ½ teaspoon each of nutmeg and cinnamon.

Cream shortening, honey, sugar, eggs, and spices till light. Add salt, baking powder and one cup of the flour sifted together, then the milk. Beat well and stir in remaining flour. Transfer a little of the dough to a floured board, roll and shape with doughnut cutter. Fry in deep fat. Drain on crumpled paper. Dust with confectioner's sugar which may have a little cinnamon mixed with it.

Be sure to make plenty of good coffee and serve it piping hot. The sugar bowl should be filled with honey, of course. And may your party be a success!

Aurora, Nebraska.

• • •

How Are You Going to San Antonio?

By train? Bus? Auto? Plane? or are you going to rely on the good old thumb method? If you are planning to drive, would you care to take extra passengers to share the expense of the trip? Are any of you folks interested in contacting parties driving to the meeting?

If you are interested, please write me at once and state when you wish to leave, how long you expect to stay, if you are interested in the side trip into Mexico, number and names of persons in your party, and other details.—A. Weidenkopf, Secretary-Treasurer, American Honey Producers' League, P. O. Box 2020, University Station, Madison, Wisconsin.

Two-Queen vs. Single-Queen Colony Management

C. L. FARRAR

Associate Apiculturist, Division of Bee Culture, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

C. L. Farrar.

Studies on seasonal changes in colony characteristics being made at the Intermountain Bee Culture Field Laboratory[1] suggest that a marked advantage may be obtained from intensive, or two-queen, colony management. This type of colony management is based on the following experimental findings: First, surviving populations of over-wintered colonies are nearly proportional to the amount of reserve pollen left in the fall[2], permitting late winter and early spring brood-rearing. Secondly, for any honey flow the production per unit of bees increases as the population increases; in other words, one strong colony will produce more honey than two smaller colonies containing the same total number of bees. This tendency is indicated throughout the normal population range and also in extra-populous colonies obtained under the two-queen management to be described in this paper.

The influence of pollen reserves and a second queen on populations, and of populations on production, is shown in Table 1, page 594.

It will be noted that colony 4 developed much less rapidly than colony 11. This is due to the influence of new sources of pollen in the field six weeks earlier in 1934 than in 1935. The same influence is reflected when colonies 1 and 12 are compared.

The second queen introduced into colony 12 did not develop her brood-nest rapidly until after July 2, when an upper entrance was given. Prior to this, the bees did not carry pollen up through the excluder to the upper brood-nest.

The production of colony 11 decreased between August 7 and 19, whereas that of colony 12 increased. The honey flow was probably less intense during this period than during the previous one, but colony 12 fed considerably less brood in proportion to its bees after one queen was removed. Colony 1 was operated as a two-queen colony until the end of the honey flow and was then divided into two colonies for winter, thus making 100 per cent increase.

The difference between the total production of the normal colonies and that of colonies operated intensively is sufficiently great to show the advantage of the intensive method. A second queen can be provided at a cost equivalent to 10 to 15 pounds of honey. It is much more difficult to provide pollen reserves, but in many areas conditions for obtaining these will be more favorable than in the vicinity of Laramie. Certain beneficial practices were suggested in the preliminary paper[2], and the removal of one queen at an opportune time appears to increase pollen reserves in much the same manner as results from queenless colonies without destroying the storing instinct. Colonies made entirely queenless fall off in production.

The chart, page 595, illustrates the principles of management used in handling two-queen and normal single-queen colonies. The letter-number designations show the changes made in position of brood chambers and supers, together with the number of hive units required to operate the colonies. New letter designations, A, B, etc., are given each time there is a change in position or additional equipment is added. The time interval between each change is dependent upon colony strength and the intensity of the honey flow, additional hive equipment always being provided in advance of the colony requirements for both brood rearing and

[1]The Intermountain Bee Culture Field Laboratory is located at Laramie, Wyo., and is maintained co-operatively by the University of Wyoming and the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

[2]Farrar, C. L. 1934. Bees must have pollen. Gleanings in Bee Culture 62: 276-278.

XUM

honey storage. Under each type of management the change made at B will be seen by comparing its arrangement with that of A. In like manner C may be compared with B, etc., and G_1 to G*n* with F (n represents an indefinite number of changes dependent upon the requirements of the season or the locality). Toward the close of the season the hive equipment is reduced in the manner indicated under H and I. Under the single-queen colony management, it will be seen that five hive bodies containing combs are recommended and that storage requirements beyond this are met by extracting a finished super and replacing it between the two supers already on the hive (e. g., ExS_1, position 4, F). Under the two-queen colony management seven hive bodies containing combs are required, and it may be expected that two finished supers will be extracted at the same time. These are replaced between the upper and the lower brood-nests (e. g., ExS1+2, positions 2 and 3, G).

"A" represents two-story overwintered colonies in both series. The most brood is found in the second hive body, as the queen is dominated by a tendency to move her brood-nest upward unless restricted by honey or an excluder. Reversing two-story brood chambers at about 10-day intervals throughout the active season will usually confine the queen's activity to these chambers without the use of excluders, reduce the tendency for the brood-nest to become honey-bound, and stimulate the queen to produce a maximum brood-nest throughout the active season.

Under normal single-queen colony management the first super should be placed in position 3 (S_1, C) and contain nine drawn combs spaced uniformly. It may be desirable to add these combs even before there is any honey flow to hold the excess bees. When the honey flow begins, new supers of drawn comb or foundation should be placed in position 3 (S_2, D; S_3, E) with the partially filled supers raised above. This arrangement allows for maximum storage directly above the new active brood-nest. Supers extracted and replaced wet should be placed in position 4 (ExS_1, F; ExS_2, G_1) above a super containing some honey, since the queen will move her brood-nest into these wet combs if they are placed in contact with the brood-nest without an excluder.

Under intensive colony management strong colonies are given a second queen at about the time they require a third set of combs to provide clustering space.

Table 1.—Populations and honey production under normal and intensive colony management, 1934 and 1935.

Date	Normal colony management[1] Population, thousand bees	Gain or Loss in pounds of honey	Intensive colony management[2] Population, thousand bees	Gain or Loss in pounds of honey	Manipulation
1934[3]	Colony 11		Colony 12		
May 14	17.5	----	33.0	----	
27	22.1	-0.4	42.2	+17.7	
June 8	26.1	-2.8	45.8	+ 3.7	
20	33.2	-7.3	51.7	- 9.9	Introduced second queen
July 2	35.5	+1.0	59.4	+ 3.8	
14	33.4	+27.9	57.8	+ 30.2	
26	38.9	+44.0	70.4	+ 55.5	
Aug. 7	54.2	+76.4	79.9	+ 91.6	Removed old queen
19	46.5	+54.2	98.2	+124.9	
31	42.3	+44.4	94.9	+112.1	
Sept. 12	44.1	+ 3.7	70.3	+ 21.8	
Total		+241.1		+451.4	
1935[4]	Colony 4		Colony 1		
May 29	17.8	----	25.8	----	Introduced second queen June 5.
June 21	7.8	-5.9	32.7	+16.4	
July 3	9.0	-2.2	47.4	+ 5.8	
17	7.9	+4.4	64.7	+62.4	
31	18.5	+9.4	84.6	+91.5	
Aug. 14	32.5	+58.2	100.6	+157.0	
28	40.1	+58.5	105.3	+155.8	
Sept. 12	43.3	+26.4	96.5	+65.9	Divided colony
Total		+148.8		+554.8	

1/ Pollen reserve negligible.

2/ Pollen reserve 619 square inches in 1934 and 700 square inches in 1935.

3/ New pollen available after April 22.

4/ New pollen available after May 21 to June 1.

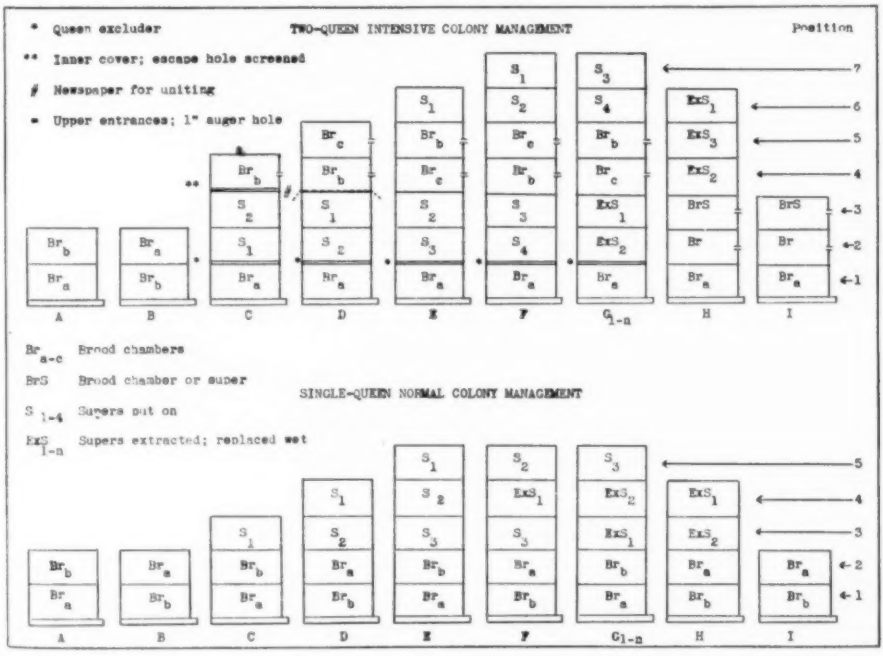
When the cluster covers 17 to 20 combs, from 4 to 6 frames of mature brood with honey and pollen (Br*b*) may be raised to position 4, C. The old queen and the remaining brood should be confined to the lower body (Br*a*) with an excluder, two sets of nine drawn combs, each being placed in positions 2 and 3. An inner cover with the bee-escape hole screened should separate the upper brood-nest from the three lower bodies. An entrance into this brood-nest may be provided by a one-inch auger hole through the front end of the hive body. A young laying queen should be introduced into this brood-nest. More than half of the bees should be raised up with the brood, since the older bees will return to the lower brood-nest through the lower entrance.

The upper queen and her brood-nest are completely separated from the lower colony for 14 days or more, or until she has a well-established brood-nest of her own. The screened inner cover can then be replaced with a newspaper for uniting (D), and 10 frames of dark combs (Br*c*) added if the upper brood-nest requires room for expansion. Supers 1 and 2 should be reversed if 1 contains more honey than 2. As the colony requires additional room for expansion, the two upper brood chambers (Br*c* and Br*b*) may be reversed and either super 1 or 2 (whichever contains the most honey) placed in position 6 and a new super in position 2. The same procedure is followed when making the colony seven stories high.

Supers 1 and 2 can usually be taken off at the same time and 3 and 4 placed in positions 6 and 7 (G_1). The upper brood-nest should be reversed and two supers that have been extracted placed in positions 2 and 3. The number of such changes will be determined by the length of the honey flow.

Manipulations prior to the main honey flow may be made at 10-day intervals, but two weeks or more should be allowed between introducing the second queen and uniting the two units. During a good honey flow manipulations every six to eight days may be necessary where two full-depth hive bodies are added at once. No problem of swarming has been experienced with these extra-populous colonies under this management. The necessity for keeping up with colony development by timely manipulations should be recognized, however, since, should swarming occur, the loss in production would be very heavy.

Good two-queen colonies may gain 25 pounds or more per day under honey flows that permit normal one-queen colonies to



store from 10 to 12 pounds. The most honey will be stored above the upper brood-nest. The upper brood-nest tends to become honey-bound, but this can be minimized by periodic reversals of these two bodies. The lower brood-nest (Br*a*), occupied by the old queen, will contain little honey, hence 10 combs will meet the space requirement of a good queen. By keeping empty supers between the upper and the lower brood-nests until they contain some honey, the upper queen can be prevented from moving into them without the use of additional excluders.

Seven-story colonies may be considered too heavy for use in commercial practice; yet the beekeeper's first interest is the production of a maximum number of pounds of honey from the available bees. A few beekeepers have used a common set of supers over two-queen units placed side by side, but with much greater difficulty in keeping the brood-nest from becoming honey-bound. To make this arrangement workable, supers of a new type having at least 17 shallow frames should be employed in order that super combs will cover eight or more frames of each brood-nest. Both queens should be provided with two-story brood-nests, and their respective units reversed periodically in the same manner as under single-queen management. A large special queen excluder, which will confine both queens to their respective brood chambers but permit common work in the supers by the bees from both colonies, would also be necessary. This plan is not considered so effective as the method outlined in the chart. It also has the serious disadvantage of requiring special equipment.

By employing the two-queen plan of manipulation, the populations of strong colonies can be approximately doubled within seven to nine weeks, and the colony yield will probably be more than doubled. Where increase in colonies is not desired, the removal of the old queen and consolidation of the two brood-nests (H) tends to increase the pollen reserves because of the excess of young bees. These reserves, together with opportunity of entering the winter period with a comparatively young queen—i. e., through annual requeening—greatly strengthens the colony's chances of surviving the winter in a populous condition.

Only strong colonies should be used for two-queen operations. When strong colonies are not available at the proper time, a package with queen might be used to establish the upper brood-nest, and then united with the over-wintered colony to obtain the two-queen unit.

Louisiana's Geo. W. Bohne

E. R. ROOT

The Man Who Says Exactly What He Thinks

I like to meet a man in friendly confab who dares to disagree with me either on fact or policy. Well, George W. Bohne, of Luling, Louisiana, says exactly what he thinks and his thinking is usually along correct and logical lines. His wife, a little mite of a woman, fearing the effect of some of his onslaughts, will sometimes say, "Now, George, be careful," and George with a sly twinkle in his eyes, slows down.

I told J. W. Newton, referred to in our August and September issues, that I was expecting to call on our mutual friend, Mr. Bohne. A significant smile crept over his face that I did not then understand. After Mr. Bohne and I had enjoyed a confab of almost straight forty-eight hours, I began to sense what Mr. Newton meant. My wife said to me as we left Mr. and Mrs. Bohne, "You met your match at last. Mr. Bohne out-talked you." Whether this was a left-handed compliment to him or me, I don't know, but she added, "He was so interesting. It is not often that I listen to bee talk into the small hours of the night."

It would be impossible to give here even a gist of our nearly forty-eight hour confab to which Mrs. Bohne and Mrs. Root patiently listened. George would every

Fig. 1.—Geo. W. Bohne, Luling, Louisiana, County Agent and Bee Extension man for his parish, practices what he preaches. He keeps his colonies strong by letting them have plenty of natural stores. Fig. 2—Mrs. Bohne is a mite of a woman but she knows how to handle her big man. Fig. 3.—Mr. Bohne believes in and uses a scale hive as a check on the work of the other colonies. Fig. 4. This is his new snug neat little bungalow, just right for two people. Everything about the premises, the yard, the bungalow, the bee yard, the shop and the office, are in keeping with the orderly neatnees of Mr. and Mrs. Bohne, well past their sixties.

XUM

now and then burst out with something that would startle Mrs. Root and me, and scare Mrs. Bohne.

For a sample of how he can surprise, read page 564 of our last issue, page 618 this issue, or the Beekeepers' Item. Suffice it to say here that there is only one Geo. W. Bohne in this whole country. He knows the beekeeping problems of the Southland as but few men do. He formerly was president and also Secretary of the Southern Beekeeping States Federation, and is now President of the Louisiana State Beekeepers' Association, and a leader in the whole Southland. He thoroughly knows farm problems of the South; is County Farm Agent for his parish, St. Charles. He instructs the beekeepers of his county how to keep bees better, and, in a general way, tells the farmers how to meet their problems. I had the pleasure of seeing him in action while on a couple of trips with him; hows he acts as a veterinary surgeon; how he can give "shots" to farm animals to prevent disease among them.

When it comes to beekeeping he knows how to combat A. F. B. and how to get a paying crop of honey. He does it himself as the illustration, Fig. 1, shows. The pictures tell their whole story. He is scientific, methodical, and up-to-date in how to keep bees in Louisiana and **make them pay.**

If you want to get into a confab, just suggest to Mr. Bohne that southern or dark honey is not as good for table use as northern light honey. Dark honey, he contends, is good and will take no back seat in his market. It has more mineral matter and is therefore better for your digestion.

Fig. 5.—Mr. Bohne holds that many beekeepers, especially in warm latitudes do not provide their bees with a near water supply. He mounts a wooden keg over an overturned stone crock. At the bottom of the keg on one side, he placed a small pet-cock. The keg is filled with water. The pet-cock is opened just enough to allow a constant drip of water to fall on pebbles scattered over a porcelain tray beneath. The pebbles are covered with bees.

Fig. 6.—Mr. Bohne says it is necessary in the Southland to have hives up on platforms for convenience in handling the hives, to keep out dampness during winter and spring, and above all, to forestall ants which in the South are very destructive. For that he places a cheap tin pie plate inverted over the supporting posts to the platforms. This plate is greased on the underside to keep away insects, especially ants.

Study of Pollen Substitutes

MYKOLA H. HAYDAK

Division of Entomology and Economic Zoology, University of Minnesota.

A Further Study of Young Bees Which Had Never Eaten Pollen

Mykola H. Haydak.

Readers of this journal may be familiar with my article which appeared in the January, 1934, issue of this magazine. In this article an experiment was described which the writer conducted on pollen substitutes while working at the University of Wisconsin. It was found that bees can utilize dried yeast, fresh whole milk, skim milk powder, egg white, egg yolk, and whole egg for building up their bodies and for brood-rearing activity. However, the greatest number of bees was reared by the control colony which was fed pollen, and the smallest by that fed egg white. A colony which was fed rye flour food did not rear brood, and the bees developed their bodies to a very meager extent.

In the present experiment the author fed young bees which never had eaten pollen, the following food materials, mixed with honey: meat scrap, cotton seed meal, commercial casein, ground dried blood, digested tankage, whole wheat flour, whole oats flour, fish meal, corn flour, and pea flour. These were mixed with honey in the ratio 1:4 and distributed to the cells of a comb not containing either pollen or honey. Such combs, filled with experimental foods and sugar solution, were hung in small nuclei. The latter were placed in isolated screen cages having the dimensions 50 by 40 by 15 inches. Emerging bees, before they could eat pollen, were brushed in such nuclei and ate only the food which was given to them. On the third day a fertile queen was introduced to the colony. On the fourth day the bees were first offered a quantity of sugar solution and of pollen substitute. On the fifth day a frame of foundation was added to the colony. This was done in order to find out the influence of the food on the building activity of the colony. On the seventh day a number of just emerged young bees were marked on their thoraces, in order to know their exact age, and added to each of the experimental colonies. During the next eight days twenty of these bees were taken every two days from each experimental colony, their heads and abdomens removed, and the thoraces dried and weighed. The nitrogen content of these thoraces was determined. This was done for the purpose of finding out whether any experimental food given to young bees is suitable for their growth. Young bees, like all other young animals, grow when the proper food is given to them. Their weight increases because the amount of proteins and other materials of their body increases, too. Therefore, we may follow the growth of any young living being by determining its weight and the nitrogen content, since nitrogen is a conspicuous constituent of proteins. The influence of food upon the health of the experimental bees was determined by establishing the percentage of bees dead during the 21 days of the experiment and by observing the behavior of the bees fed those foods. The experimental colonies were examined every day for brood rearing. Ten days after the first sealed cell was observed, this comb was taken from the colony, the number of sealed cells and of larvae just about to be sealed was counted and the comb was placed into a constant temperature chamber adjusted to 91 degrees F. and 75 per cent relative humidity. The weight and the nitrogen content of the heads, thoraces, and the whole bodies of emerging bees were determined. A colony of young bees, handled in the same way, received a

comb with pollen and honey and served as a control.

The results of the experiment were as follows:

1. Bees could develop their bodies normally when fed meat scrap or commercial casein mixture. The development of the bee body on cotton seed meal, ground dried blood, digested tankage, whole oats flour, and whole wheat flour proceeded more slowly than normal. The development of the body of bees fed corn flour, fish meal and pea flour was very poor.

2. The control colony and the colonies fed meat scrap, cotton seed meal, commercial casein, digested tankage, whole wheat flour, and whole oats flour were quiet. That fed ground dried blood was restless. The bees in the colonies fed corn flour, fish meal, and pea flour were very unquiet.

3. The lowest mortality of bees was in the control (12.7 per cent) and those fed meat scrap (18.7 per cent) and cotton seed meal (27.8 per cent). The percentage of dead bees in the colonies fed commercial casein, ground dried blood, digested tankage, whole wheat flour, whole oats flour, and corn flour was higher, amounting to 42-49 per cent. The greatest number of bees died in the colonies fed pea flour (92.9 per cent) and fish meal (96.6 per cent). It is interesting to note that the lowest mortality was in those colonies which produced young bees.

4. Only the control colony and those fed meat scrap and cotton seed meal produced young bees. Bees fed commercial casein, ground dried blood, digested tankage, whole oats flour, or whole wheat flour attempted brood-rearing. However, after the larvae appeared to be 1½ to 3½ days old they were removed or eaten by the bees. Several sealed cells were observed in the colony which was offered commercial casein mixture, but the larvae died before or shortly after pupation. The colonies given fish meal, corn flour or pea flour as pollen substitutes did not even attempt to rear brood.

5. The young bees produced by the colonies fed meat scrap and cotton seed meal were normal. However, the emerging bees from the former colony contained the largest amount of nitrogen. This was due to the fact that the abdomens of those bees contained 29 per cent more nitrogen than the abdomens of the control colony. Thirteen per cent of the sealed larvae in the meat scrap-fed colony failed to emerge. They were found dead in the cells. All the sealed larvae in the control colony and that fed cotton seed meal emerged as normal young bees.

6. Building activity was normal in all colonies except those fed fish meal or pea flour.

St. Paul, Minnesota.

High Lights of the Delphos, Ohio, Meeting

The Ohio Beekeepers' Association held their summer meeting at Delphos, Ohio, on August 13, 14 and 15, right in the choicest honey-producing area in the United States, if not in the world. On Thursday, the 13th, a tour of the outlying yards was made and several demonstrations were given by Dr. W. E. Dunham, of Ohio State University.

On Friday, the 14th, we all gathered under a mammoth tent beside the Leininger home and by the time the meeting was called to order every chair was occupied and it was hard to find standing room for two together.

The meeting could almost be regarded as a national meeting, taking into consideration that a large number of commercial beekeepers and educators from states other than Ohio attended the meeting, many of whom gave some splendid information on the art of beekeeping.

Another tour was made Saturday forenoon, which was a repetition of the Thursday trip for the benefit of those who could not go Thursday.

We extend our thanks to those who subscribed money to the American Honey Institute at the Delphos meeting, and also to those who so kindly and generously made donations of honey to the association. The next big meeting of the Association will be held at Ohio State University in Columbus during Farmers' Week, and we desire to round the year out by making this the best meeting ever held by any beekeepers' association and, incidentally, it costs money to get good speakers, so, if you, Mr. Beekeeper, of the state of Ohio, have not paid your dues in either honey or money, get in touch with your county association secretary or mail dues direct to your association secretary, Dr. W. E. Dunham, Ohio State University, Columbus, Ohio.—W. A. Coulter, Columbus, Ohio.

A Confab

CONDUCTED BY E. R. ROOT

Allen Latham at home among his bees.

Some points that were formerly in doubt have now been cleared up in the discussion under this head. What are they? First, it is well established now by what has appeared and what is given in this issue that queens can and do lay eggs in queen cells. It has equally been proven that bees can and do move eggs. It is not so well proven that bees may go to another hive, steal an egg, and hike back home. It has been proven that a female egg in a hive hopelessly queenless for a considerable time may be suddenly found in a queen cup from which a normal virgin may emerge.

If bees can and do move eggs why could they not in dire distress and as a last resort steal eggs from another hive? A bee with an egg in an alien hive would not be regarded as a robber and would be allowed to proceed toward the entrance and thence to its home. That all of this could be seen by a human observer is improbable if not impossible. He would not be likely to see a strange bee go into a strange hive in quest of an egg. He certainly could not follow her through the air.

That the sex of an egg is determined by the constriction of the abdomen of the queen in a worker cell is disproven by the fact that female eggs may be deposited in very shallow cells on newly built comb foundation where no pressure could be exerted. The pressure theory has long been an exploded myth and may be dismissed.

The question of which is the normal procedure—bees moving eggs into queen cells, or queens putting them there will be hard to prove. Pritchard says the bees do it normally and Latham takes the contrary view.

With this introduction we will let Mr. Latham lead off.

Willing to Give in But of the Same Opinion Still

Dear Mr. Root:

I have been rather busy the past few weeks, but am going to steal time now to reply to some of my critics.

I see that I shall have to give in that worker bees will not place eggs in cells, since we now have observers who report having seen it done. Let others hitch a queen and watch results.

However, I still contend that such a procedure on the part of a worker bee is abnormal, and unusual. I still believe that they will not go into another hive and steal an egg and bring the same home and rear a queen from it. Bees are fixed in their habits and since in all my 52 years I have never known a queenless colony to acquire a queen in that manner I feel sure of my ground.

I have had queenless colonies acquire queens many times, but in every case it has been from the arrival of a stray queen accompanied by a small swarm.

The position of the eggs in the cells is very suggestive. A queen lays an egg about 60 degrees to the plane of the base of the cells. It is hardly reasonable that the worker bee would place an egg at that angle every time.

Some say that the sex of the egg is determined by constriction on the abdomen of the queen or absence of such pressure. I have just been looking at a bit of comb built by the bees in a space left vacant by removal of a comb. The newly-built comb was as big as my two hands, but not thicker than half an inch anywhere. There were numerous eggs even to within an inch of the edge where the cells did not average over one-eighth of an inch deep. Draw your own conclusions.

Again, it is argued that the hold a queen has on the comb has an effect. When on drone comb her legs are wider spread than while on worker comb. In the case of a queen cup the legs are closely bunched when the queen lays in the same. If this position of the legs is important what sex will eggs be when a queen lays in cells where drone and worker cells are adjacent? Possibly that will explain hermaphroditic bees, of which I have seen not a few.

Mr. Doolittle in his "Scientific Queen Rearing," says on page 17, that his assistant saw a queen deposit an egg in a queen cup, "and so have others" (quoted from same page).

Mr. Fred A. Krause, of Barron, Wis., writes me that he has seen the queen lay an egg in a queen-cup.

Now, if this act has been seen, I assert that it is the habit of the queen to do this.

One last word about bee's moving eggs. If bees do this, then why when a colony is queenless do the bees invariably build a queen-cell about a worker grub in a worker-cell? Why do they not move that grub or an egg to a proper queen-cell?

Jas. I. Hambleton questions my statement about the proportion of nurse bees in the swarm. For over 20 years I allowed my bees to swarm and I almost invariably opened up the hive

from which the swarm issued. Now swarms differ greatly, but usually there are left in the hive only old bees with ragged wings and newly hatched bees (the term hatched I realize is incorrect, but I know of no good substitute). Less than 10 per cent of the bees will be other than these. The swarm, on the other hand, will have few bees with ragged wings, and almost no newly emerged bees.

I re-assert that a prime swarm usually has a preponderance of nurse bees, and a second or after-swarm will have a still larger percentage of nurse bees.

Mr. Isaacson has given us some mighty good reasoning. He is right in his statement that both queen and worker are modified insects. Yet I still contend that the young larva is royal rather than worker. In the remote past there were no workers—I do not know how long ago, 10,000,000 years, or maybe 100,000,000 years, the queen then did the work as well as lay the eggs, just as so many of our solitary bees do still. Then she acquired worker bees to help her, just as bumblebees and hornets do today. As soon as she acquired helpers she began to increase in egg-laying power. Instead of hundreds of eggs she can now lay thousands in her lifetime. This increase of fecundity was accompanied no doubt with a decrease in her other powers. She gradually lost the power of wax-secretion, of pollen-gathering, of chyle-production, etc. Therefore, the queen is a modified insect.

Now the newly-hatched larva in a worker-cell is believed to be fed with the same sort of food as the newly-hatched larva in a queen-cell. In the case of the larva in the queen-cell the food continues to be the same but is increased in abundance. In the case of the food given to the larva in the worker-cell a change is made. Therefore, I assert that the royal road is the straight road, and that when the food is given to the larva in the worker-cell a departure from the straight road has been made.

There has never been a departure from the road leading to royalty. The road has simply been improved. Mr. Isaacson is such a good reasoner I feel sure that he will agree to this.

No freak of nature at all, Mr. Isaacson. There is need for more of the abnormal both with ants and bees. Nature meets that need.

Size of cell has but little effect. Of course, if a cell is too small the queen will be poorly developed; but I have seen most excellent queens come from cells so small that the queen touched both ends snugly. I have seen worthless queens come from cells so long that ¾ of an inch empty space was there. I have seen worker bees reared in cells so large that the pupae rattled round when the comb was turned. Anyone can see this by having a lot of combs built on sagged foundation.

All nurse bees, Mr. Root, can fly, unless their wings are deformed. Bees are not nurse bees until after they are able to fly.

Mr. Johll and many others have told about queen-cells above excluders. Unfortunately there is no proof here either way. Many a queen gets through excluder zinc. Many stray queens get into hives unnoticed. Many colonies have two queens. I have had it happen that in manipulation an old queen got above the zinc and her daughter was left below. Laying in queen-cups must be proved by actual view of the act. Any other method is faulty.

Mr. Isaacson, you say that all infant life has a different food. When, may I ask, does a larval bee cease to be an infant? Now it happens that the bee is an insect. All insects go through a larval stage. So far as I know, almost if not all insects eat the same food throughout their larval stage. The tent-caterpillar, for illustration, eats only leaves of certain trees until it is fully grown. So why should the larva of the bee have a different food? It does in the case of the worker and this results in bringing about a different bee.

Come on, MacDuff!

Mr. Root, one of the greatest comforts in life is the realization that the truth is the truth. We may have as many theories as we wish, but there is one truth. Honestly, I am after the truth. There is no satisfaction in trying to hold up a false theory. ALLEN LATHAM.

The points of difference, if any, between Mr. Latham and the Editor have been set forth in the introductory remarks.

Does a female egg hatch a queen or a worker? This question is very ably discussed by the Editor of the Scottish Bee Journal as follows:

Why Female Eggs Do Not Produce Normal Queens Instead of Workers

Gleanings in Bee Culture seems to reach Britain in considerable numbers, and is much appreciated by readers in Aberdeen, a British town famous for (after-dinner) stories, and infamous for low grade honey. Pray, Mr. Root, may anybody join in your little squabble, or is it a private wrestle between such one-hundred-per-cent Americans as E. R. Root, Allen Latham, and Mel Pritchard? For instance, may John Anderson, of Aberdeen, another "erstwhile science master," say a few words about normal queens and abnormal workers? (See second column on page 401, Gleanings for July.)

Mr. Latham's contention is that all "female eggs" would produce (normal) queens were it not that the nurses do something which makes them produce (abnormal) workers. On page 473 of the August issue, Mr. Latham refers to the time when there was no worker caste, when the ancestors of our honeybees consisted of only queens and drones, "perfect females and males," and we are agreed that Apis mellifica almost certainly passed through such a stage. The various species of solitary bees, and in Britain we have over 200 species, are still in that stage. The "humble bees" (Bombus), of which we have 17 species in Britain, have advanced a little further, having a distinct worker caste, but not surviving our winters as colonies—only the fertilized females survive, by hibernation. It is highly probable that Apis mellifica, the hive bee, passed through both stages.

Mr. Latham will admit, I presume, that the hive queen and drone are now perfectly incapable of living independent lives. Their tongues are too short to reach the nectar in flowers, they have no organs for making wax or collecting pollen. So far from being able to bring up a family, they could not maintain their own lives.

The females of the solitary species can feed themselves and provide for their brood; the Bombus queen can secrete wax, collect pollen and nectar, protect, feed, and rear her children; the Bombus drone gets his own living, is an important pollinating agent, and he leaves the nest as soon as he can fly.

We agree that the hive queen and drone very probably passed through a stage when there was no worker caste; but they have changed greatly since that day. At that time the drone was almost certainly able to maintain himself, and the queen could forage and nurse as well as lay eggs. She probably had pollen-combs, pollen baskets, wax-glands, and a trunk efficient in collecting nectar.

Evolution Not Confined to the Worker

We believe in evolution as strongly as Mr. Latham, but evolution has not been confined to the worker. The queen and drone have also changed greatly since the worker caste came into being. The queen has now hypertrophied

ovaries, enabling her to lay thousands of eggs instead of perhaps a dozen or two; but she has lost completely her apparatus for collecting food, and the very instinct for visiting flowers.

Both Queens and Workers Perfect Females

It is usual to speak of the queen as a "perfect female," and many assume, like Mr. Latham, that the worker is merely an ill-nourished abortion, which would have been a queen if it had not been cramped and half-starved. On the other hand, each is "perfect" in its way, and the worker possesses organs which are vestigial or absent in the queen. This differential development increases the mystery, and can not be explained on any simple space-and-food theory.

The worker bee has a calling-organ, named after Nasanoff, the Russian who first described it, but it was Sladen, the Englishman, who discovered that it produced an odor which the bee distributed by waving its wings. This organ can be seen in operation when bees swarm, in selecting a clustering place, and also in entering the new home. But no one has ever seen a queen using a scent organ, and probably she has none. But she responds readily to a scent-call sent out by fanning workers. The fact that swarms from stocks with clipped queens cluster for about half an hour proves that the queen is here, as always, a follower rather than a leader.

DR. JOHN ANDERSON, M. A., B. Sc., Ph. D.
The North Scotland College of Agriculture.

Mr. Manley, another from Great Britain, adds this:

Both Queens and Workers Modified Females

The rather interesting discussion that has been taking place through the medium of Gleanings inspires me to make a few comments.

Surely it must be quite obvious that sexually the worker is, as one may say, a modified queen. That is to say, its sexual organs have been suppressed in their development during growth by the withholding of a sufficient "larval food" which probably contains vitamins necessary for the rapid production of full reproductive power. The worker is, therefore, a female that has been modified in one direction during growth.

The queen, on the other hand, is also a modified female; but her modification is in the opposite direction. Instead of her reproductive organs being atrophied by the withholding of special food, these have been greatly altered by copious feeding of that food so that the honeybee queen is modified almost as much in one direction as is the worker in another. As Mr. Latham says, the honeybee is probably derived from a non-social ancester, its pedigree probably including a stage of temporary community existence as in the humblebee; but we have only to think of the total helplessness of the honeybee queen when isolated from her family to understand that she, too, is the result of very extensive modifications. These modications in both are really specialization of these creatures for certain purposes.

Queens Do Lay in Queen Cells

There is no doubt that queens lay in queen cells. I have not seen it done myself, but an Englishman, Dr. R. F. Caird, was a witness of the act last year. I saw this summer, however, something that was even more interesting to me. I saw a laying worker in the act of laying in a newly-built queen cell cup. A queenless colony had produced laying workers, and, when I lifted out a comb one day, I saw a laying worker actually laying. There is not a shadow of doubt about it. The bee was sitting with its abdomen in the queen cell just as a queen is often seen sitting with its abdomen in a worker cell when laying. The bee was dissected and had a few eggs present in partially developed ovaries.

Bees Moving Eggs

As to moving eggs from one hive to another, all I can say is that, after thirty years among bees, I have never found the slightest evidence of this. As to the moving of eggs from one comb to another, I think this is done at times. I have known eggs laid by a queen under a push-in cage, like that of Mr. Jay Smith, to be planted in cells outside the cage.

R. O. B. MANLEY,
Crowmarsh Battle, Benson, Oxford, England.

Proof That Queens Lays in Queen Cells

Here is the case of an old experienced beekeeper of many years of experience. He writes:

I was surprised that you never had reported that a queen had been seen depositing an egg in a queen cup.

On page 17 in S. M. Doolittle's queen rearing book published in 1899, Mr. Doolittle states that his assistant actually saw a queen lay in a queen cup, and Mr. Doolittle seems to believe queens always do.

When I was in my twenties I kept about twenty-five colonies, and ran for comb honey. I let them swarm and used only one-story hives. Since then I ran about 150 colonies for extracted.

How to Find a Queen in the Act of Laying

I concluded I was going to try to find a queen in the act of laying. I opened many and many a hive but always failed, so I concluded the bees must not be smoked as that would disturb the queen. I selected my gentlest colony to experiment on. My hives had a piece of canvas under a flat cover and loose hanging frames. I could by being very careful, open this hive without smoke. I looked into this hive probably twenty times, but could never catch the queen depositing eggs in worker or drone cells. I was disgusted.

Queen in the Act

Well, I said to myself, "I'll try just once more, then quit." So, as before, I pried the center frames apart, carefully lifted one out and glanced into the hive. I saw my queen on the next frame in the hive depositing an egg in a queen cup near the top of that frame, and when she pulled herself out of the cell, she ran down the frame as if she were frightened. That's the only time I ever saw that. But afterwards I saw queens depositing eggs in worker cells. I found that one must smoke them only a very little and open hives very carefully and gently. FRED A. KRAUSE, Barron, Wis.

Here is something on

Bees Moving Eggs

It never occurred to me that anybody would question that bees moved eggs, although I am not a very keen observer nor do I know very much about beekeeping. Last year, I Demareed a rather strong hive of bees and took out the queen cells two or three times and was sure that there was no more danger of swarming. One morning when I happened in the apiary I found considerable commotion in front of this particular hive. This was as much as five or six weeks after I Demareed the hive. I didn't know what was wrong, but on opening the hive I found that there were two queens in it fighting through a queen excluder. The old queen was under the excluder and the young queen just hatched out, on top of the excluder. The old queen stung the young one to death—she died in my hand. The old queen was promptly balled by the bees and I shut the hive up immediately and she came through all right. Now, I would like to know how that single solitary egg got into a queen cell up above the excluder, unless the egg was carried. I could not find any other brood of any kind up where the queen hatched. I found the cell from which the queen hatched above the excluder.

J. R. HELPER,
Assistant Horticulturist,
University of New Hampshire.

XUM

From the Field of Experience

SINGLE COLONY WINTER CASE

Such a Case May be Used Year After Year

Go consider the bees, thou beekeeper.
Let true bee culture soak in deep, while the sluggards sleep;
And you will have honey to sell and to keep.

By this paraphrase we do not mean to conclude that all beekeepers are sluggards, but after the snow begins to fall, it is too late then to start packing bees. As the alternating activities of the bee colony are timed perfectly by their instinct, so the various beekeeping operations such as packing the bees for winter, etc., must be timed by the wisdom of the beekeeper. October first is all right, but we generally start packing our bees when the leaves begin to fall. They make the best insulation, do not readily absorb moisture from the ground, and cost nothing.

Packing with tar paper and coarse sawdust.

Our single-colony paper winter cases, which we have used successfully for fifteen years, are superior to any other such cases yet described in the bee journals, as for low cost, simplicity and efficiency. They are easy to handle. They are waterproof and windproof, and are made of regular asphalt building paper. A roll contains 500 square feet and costs about $1.75. Cutting a piece 8½ feet long for 8-frame hive or 9 feet long for 10-frame hive, each roll makes 20 cases. To make the entrance, use two wood strips or cleats about 19½"x1½"x¾", or the wood strips from bales of cedar shingles which may be secured without cost where the shingles are being used. Place the two wood strips parallel to and in about four inches from one edge of the paper at about the middle of each sheet—that is, one piece on either side of the paper and nail them together through the paper by two small nails. Then bring the two ends of the paper together and roll them together on a lath. Slide lath out and press same flat. Then secure the seam by stitching up three-fourths of the way from the bottom with No. 14 galvanized wire sharpened on one end. Now, after the colony has been tilted forward so that any condensed moisture will drain out, place paper case down around the hive touching the ground on the two sides and back. The wood strips are turned in and laid on front of bottom-board, making a perfect tunnel entrance. Entrance strips are held in place by a brick, while dry leaves are packed from the ground up. Tops are folded in thus, the front, then the sides, then the back, and the outer cover is placed on the top, and the brick is placed on the cover. See accompanying picture of the above described method. These cases may, with a little care, be folded away and used year after year.—Wm. R. Stephens, Wingate, Indiana.

WINTERING BEES IN WISCONSIN

Populous Colonies with Ample Stores Are Likely to Winter Well

In fairness to my method of outdoor wintering, I will make a short report of results for last winter, the most severe winter known in Wisconsin in 60 years. Between November 1 and 15, I wrapped 15 colonies in eight-frame two-story hives.

The upper story in each case was supposed to contain ample stores, but I did no fall feeding and evidently some were short. Not knowing, or even suspecting, that we were to have such a long cold winter, I was less careful than ever to provide warm insulation. I just wrapped each hive with about two thicknesses of cheap thin paper. Lower entrances were closed tightly and some dry leaves banked up around the bottoms of hives. A three-quarter inch augur hole near the top of each hive furnished all the ventilation they had and the only entrance opening.

On February 8, I left for Florida and did not return till May 2. All winter the bees had no attention whatever. On examination during the first week in May I found ten colonies strong and gathering pollen. Five were dead from starvation. They had consumed the last drop of honey and then perished. Evidently this was no fault of the wintering method. I am more and more convinced that bees will winter outside in our climate if they are strong colonies and have ample stores.—Harry Lathrop, Bridgeport, Wisconsin.

EXPERIMENTAL WORK WITH A.F.B.

This Work Should be Undertaken Only by Properly Qualified Persons

The round table discussion of apiary inspectors appearing in December, 1935, issue, is very interesting. I would support the suggestion that bee journals refrain from publishing experimental results concerning the immunity of bees to American foulbrood unless they are definite. I have had some years of active work on foulbrood in New South Wales as apiary inspector, and as a result, I would state definitely that no experiments should be made by any but the most efficient persons who have an isolated site, plenty of time, and sufficient finances to allow for the destruction of the experimental apiary.

At the present time there is very little A. F. B. in this state in comparison to the number of colonies, about 200,000. Practically all the honey is gathered from trees, perhaps one-tenth being gathered from ground flora, and this fact will show how difficult it is to obtain an isolated site, because of the swarms in the trees. There has already been a lot of trouble, through neglectful beekeepers, allowing the disease to spread to the trees, which has necessitated years of careful work in eradicating it. If bee farmers start monkeying with the disease it will certainly spread to an alarming extent, and like a bush fire, will not be stopped without heavy loss. If the disease becomes rampant here, or spreads to the extent it has in America, it will ruin many beekeepers and the industry generally.

Registration of apiaries is compulsory in New South Wales, one or more colonies of bees constituting an apiary, and the use of box hives in prohibited.

There is no tax, although the association has asked the government to make a charge under the head of "Registration Fee," but nothing has so far been done. If a fee were charged it would simplify inspection work, and probably provide more inspectors. Then I believe this state could eventually be made clean.—Phil A. Shallard, Merrylands, N. S. W., Australia.

MORE ABOUT HYBRID BEES

The Hybrid Seems to be the Same Regardless of Which Way the Cross Is Made

J. F. Dunn's remarks concerning hybrids in the August issue illustrate so well the common failure to distinguish between the first and succeeding generation of cross-breds that some comment is in order. His observations concerning the segregation of characters in cross-bred poultry show plainly he is thinking of the second instead of the first generation. A cross between two uniform breeds is bound to be fairly uniform in the first generation except in the unusual case of sex-linked characters like the barring of the Plymouth Rock. In poultry, the hen is a perpetual hybrid for sex and also for barring when present, as the barring gene seems to be carried in the male sex chromosome. The Barred Plymouth Rock carries a factor for black color which is dominant to most others and is inherited regardless of sex, so if you cross Barred Rocks with other breeds which do not carry the barring factor you usually get black hens and barred males in the first generation, which is merely the result of sex-linkage. There is no reason to think that such linkage affects the vigor and productiveness of the hybrid, though it might affect the marketability of hens in this case.

XUM

There seems to be no important sex-linked characters in the honeybee, despite the unusual manner in which sex is inherited. The hybrid between two races seems to be the same, regardless of which way the cross is made. However, since the drone represents his mother's stock exclusively it would seem expedient to use queens of the race having the more desirable characteristics in producing hybrid workers for honey production, as in this way the drones would tend to cover up undesirable segregation of characters in the progeny of such hybrid queens as might crop up as the result of supersedure, etc.—H. D. Tennent, Velasco, Texas.

PLAN TO GO TO SAN ANTONIO

Conference to be Held Near the Alamo, the Place of Supreme Sacrifice

Referring to past history, one hundred years ago at the Alamo a mere handful (137) of native Texans fought for home, life, and liberty against overwhelming odds of 3000 well trained Mexican soldiers under Santa Anna with guns and equipment. They died that others might live. Every one of the 137 were butchered without quarter, including Col. W. B. Travis, commanding, Col. James Bowie, and Col. David Crockett. It was Col. Travis who sent back the answer to Santa Anna, "Victory or death." It is said to have been the "most heroic sacrifice in American history, yea, without a parallel in world history." The battle was fought within and without the walls of the Alamo church, some of the walls of which still stand in the beautiful city of San Antonio.

This wanton butchery of real heroes aroused the fury of the whole of Texas and the border line people of the then United States. The result was that Santa Anna and his forces were crushed and captured and the border line of Texas was pushed down to the Rio Grande River. Tex as was added later to the United States, the whole of Texas giving Uncle Sam one-fifth more territory.

All this wonderful history centers around the Alamo, shown in Figs. 2, 3 and 4. The great International Conference will be held at the Crockett Hotel (see Fig. 1) and only a stone's throw from where the 137 men dedicated their lives to a greater liberty and opportunity than the world had ever known.

Red-blooded Americans are going to attend the Texas Centennial at Dallas and beekeepers will swarm out and settle in San Antonio at the greatest conference of beekeepers that was ever held in America, if not in the world. One or two sessions will doubtless be held within the walls of the Alamo.

Beekeepers, judging by reports, will begin to arrive by automobile and by train on Sunday, November 22, and, of course, they will stay on for the rest of the week. Rates at the Crockett Hotel can be had as low as $1.50 for one person and $2.50 for two. Other hotels and rooming houses nearby will furnish lodging for $1.00. Other stopping places can be secured for $1.00 for two. Camping sites for a tent, with water and electricity, may be had for a dollar to two dollars a week.

There are farmer-beekeepers in the North whose health does not withstand the cold weather. There are others in the great West on the plains who have perhaps had to abandon their farms. They, with men who depend on bees for their bread and butter, will wish to look over Texas, which is first in size and first in general agriculture and by no means a poor state for the keeping of bees.

The queen breeder and the package bee man from Louisiana, Mississippi, Alabama, Georgia, and Florida, who does not attend this convention will lose business to the one who does go. The northern beekeeper who suffered heavy winter losses in the winter just passed will go down to this land of promise to see what he can do in raising bees for himself or buying them from one already established in the South.

On the way down beekeepers should stop at Baton Rouge, Louisiana, and visit the wonderful Bee Culture Laboratory, described in our August issue, page 459.

Write to E. G. LeStourgeon of the Beekeepers' Item, Box 838, San Antonio, Texas, for price of lodgings, but be sure to enclose postage, or better, a stamped and self-addressed envelope. Better make reservations early.

There are plenty of parking lots, one in front and several nearby the Crockett Hotel. Call on the Entertainment Committee and you will be assigned, if not otherwise provided, reservations in reach of your pocketbook.—E. R. Root.

Fig. 1.—Crockett Hotel, on the top of which the convention will be held. In the large lobby first floor, will be exhibits of honeybees and bee supplies. On this floor a large number of beekeepers can meet in groups. Rates are low and within the reach of beekeepers.

Fig. 2.—The main front of the one hundred year old Alamo, showing battle scars from cannon.

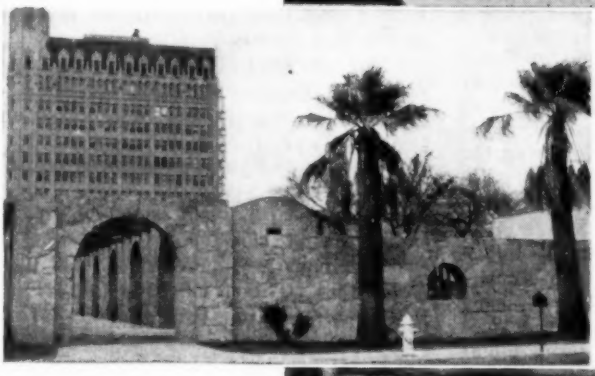


Fig. 3.—The court yard of the Alamo surrounded by a heavy wall inside of which the awful butchery of the Texans took place. The magnificent modern Medical Arts building is shown in the distant background.

Fig. 4.—One of the beautiful corridors of the ancient Alamo. Age has only enhanced its beauty. Cannon shot did not destroy or even mar it. It is a fitting monument of its heroic dead who made history.

XUM

WINTERING A BABY NUCLEUS

This Can be Done if Adequate Protection and Good Food Is Supplied

In October, 1934, at Cortland, New York, I began an experiment with wintering a baby nucleus outdoors; but with buildings on three sides and a southern exposure. The bees were in a 10"x10"x6¼" hive (8"x6¼" frames), seven frames, and packed in a 20"x20"x10" hive for a packing case. One five-pound pail of sugar syrup was fed. Sawdust was used for packing. A 1"x¼" entrance was used. Winter flights occurred as follows: Two in November; one, January 5; two in February, and several in March. Several times the temperature was zero, twice 10 below zero, and at least once about 15 to 20 below. Food consumption was normal, and conditions inside the hive very good. Carpet was used for covering (not touching frames). Combs were handled five times without any damage to bees. Loss of bees was normal; no candied honey. Inside temperature was more than sufficiently high. Snow melted at entrance at normal winter temperatures.

On March 17, two combs were covered with bees. On March 18 a two-pound package of bees was introduced, and on March 21, the queen began laying. The colony was later transferred to a 20"x20"x10" hive—the one used for a packing case. The colony did excellent work during the following summer in building combs, gathering honey and for making increase.

This past winter I wintered the original colony and one of the increase in 20" x20"x10" cases (14 frames) in a double-packing case with excellent success, using a three-sided windbreak. I have wondered if this nucleus method of wintering might prove of value where it is desirable to kill off bees in the fall and yet save "super-average" queens. The cost would be about 45 cents for sugar-syrup or honey. Package bees added in the spring would add to the cost. Perhaps it would not be practicable on a commercial basis.—Luis B. Hochstein, Milford, Pennsylvania.

COMMENTS ON CURRENT ITEMS

The Washboard Act

An interesting question, "Why the washboard movement of bees?" page 544, crops up every once in a while. Numerous possible reasons have been offered. Some years ago the question was thoroughly discussed in the A. B. J., and we offered this opinion: We have noticed that bees are most active along this line in mornings after a heavy dew has formed on the alighting boards. Might it not be true that they are gathering the moisture and carrying it into the hive? The editor said this was quite possible.

And about bees causing pine wood to disintegrate, might it not be quite possible that the bees add a secretion to the wood that enables them to pull up the fibers? Who knows?

I am sure we all enjoy our Spinster Jane, her practical talks, with just enough humor to make her election to the American society on writers of humor sure.

The Lazy Drone

Spinster Jane's crack at the lazy drone husbands remind me of a reply a bachelor girl made when asked why she never married. She said, "Why should I marry? I have plenty to keep up my home." The reply was, "Oh, there should be a man about the house." "Why should I want a man here to clutter up the situation. I have a dog that growls all the time, a parrot that swears half the time, and a cat that stays out all night."

Comb or Extracted

Mr. Walter Joslin's "Don'ts" are O. K. I think it was Mark Twain who said, "It doesn't pay to tell lies." I know from experience. While running a honey stand on Kings Highway No. 3, if we were short of comb honey and a customer refused to buy the liquid article, we confessed that we liked to chew the wax in the comb but said that the wax was tasteless and indigestible. Invariably they replied, "It certainly tastes better in the comb." We kept in sight 2-ounce clear white glasses with a wide mouth and filled with very clear honey. The glass was thin and showed the real color of the honey. In as few words as possible we explained the process of extracting and of straining the liquid honey into the tanks.

Size of Honey Container

Our long experience has taught us that the pint jar is a small enough container for the retail trade. At first, we kept on display 6-ounce, 8-ounce, 12-ounce and 16-ounce jars. First we dropped the 6, then the 8, the 12, and finally the 16-ounce

size. If customers asked for smaller sizes we convinced them they were getting a better bargain in the larger size. By stocking the pint only we could order in larger quantities and at a lower price. At this date, September 4, we have not had a request for a smaller glass container this year. For tin containers we use the 5-pound size. We have not used the 10-pound size for fifteen years, in fact, our regular customers do not ask for them. We find it pays to use a handsome lithographed pail with inner sanitary lining and copper wire handles. It is a little higher in price but worth it. We might say that our pails contain neatly printed recipes for honey in cooking.—J. F. Dunn, Ridgway, Ontario.

SPINSTER JANE SAYS—

The "Helpless" Drone

I enjoy reading the new page, "Confab," greatly, and am learning considerable in that reading. It seems I must no longer term the drones in the hive "lazy." The poor things are simply "helpless."

And does the same apply to human drones? If so, this is what will happen where women take over the reins of government completely: our males will become helpless. And if that must inevitably happen when man abdicates in woman's favor—well, I'm decidedly against such abdication, even though your superior males may accuse me of turning right about face in the matter. If the menfolk can become any more helpless than they are, women would need to be pitied indeed.

When a man can not find a collar-button, can not tie a respectable four-in-hand, can not put the studs in his shirt front, does it follow that his wife runs the house?

Here I have been living in the same house for years with what we termed a lazy man, only to find out now that he is not to be ridiculed but the rather pitied. How Mary Ann, his wife, laughs at the notion! It's scant pity she'll waste on her helpless half. She says she might as well be an out-and-out paralytic—one-half is helpless anyway.

Since writing, we have had a severe frost and several heavy and very noisy thunder storms that seem much like regular equinoctial gales. If so, many say, this portends an early winter.

Bees as Pollinators

Where I am just now, we hear a great deal of grumbling about poor garden crops due to the long drouth. Some say their cucumbers refuse to cuke, as in former years, and lay the blame on the absence of honeybees and also of bumblebees. Have the latter all starved, or how can we account for the dearth?

Depression, in other words, too empty a pocketbook, kept Spinster Jane from trying out that long-planned experiment in Northern versus Southern bred bees, and the result seems to be far reaching. More bees would have meant more fruit, more cucumbers, etc., not alone for ourselves, but for our neighbors as well. And once upon a time there was quite a different story. Bees were a nuisance in those days. Its a case of administering a stinging rebuke next spring, to these same folk by giving them bees a-plenty, and the way has really opened up at last, as such things have a habit of doing. A certain teacher was kept home by her mother's serious illness, so Spinster Jane is acting as supply teacher for a month, and is genuinely enjoying the work. She will surely enjoy the check that will be hers when the month is over just as much, and from it hopes to save a nest-egg to lay away ready to invest early next spring in bees.

Some Possible New Beekeepers

In teaching agriculture one day recently, I chose the topic, "The Honey Bee," and judging by the children's interest in and enjoyment of the lesson, some day we may have a few more beekeepers. If so, and when that day comes, I will surely have competition, but it will be welcome. Without competition there isn't the same striving to produce the very best, while with competition we've got to look to our laurels and keep ahead or suffer ignominous defeat and be out of the running. There is no standing still in life. Either we are going ahead or dropping behind, and who wants to be a drone?

No, I have definitely decided a human drone is not helpless but just out-and-out lazy. Like Mary Ann, I'll waste no sympathy on one of the human variety. He deserves the fate of his brothers of the bee-hive, and the slogan should be, "Out he goes."—Spinster Jane.

XUM

Editorials

Swarming in September

During the past few weeks we have received reports of swarming, especially from beekeepers in regions where there are fall honey flows. Some beekeepers associate swarming with the spring and summer months only and seem unable to understand why swarming should occur in September.

As a matter of fact, there are some regions where swarming does not occur during September. However, in regions where buckwheat, heartsease, goldenrod, aster, and other fall flowers are found in abundance, swarming may occur, especially when weather conditions are favorable for nectar secretion.

The recent rains have revived vegetation. The hot humid weather with occasional showers has brought on the goldenrod and other fall flowers in all their glory. Strong colonies are storing surplus. (This is September 15.) Some beekeepers not realizing the intensity of the present fall honey flow have failed to supply supers and consequently colonies in this congested condition build queen cells and swarm, even in September. It pays to keep colonies well supered right up to the close of the season because we never know when a honey flow may come.

• • •

Two-story Wintering in Relation to Ample Pollen Supply

During the past decade there has been a gradual trend towards the two-story or food-chamber method of wintering. We well remember the first winter we gave it a trial some twelve years ago. Some of us were dubious about the outcome. But, lo, and behold, when we examined the food-chamber colonies the following spring they were in much better condition than single-story colonies in the same apiary.

The food-chamber method of wintering has a number of distinct advantages which need not be enumerated at this time. One of its advantages has perhaps been overlooked, viz., the additional comb space in a two-story brood chamber for pollen as well as honey. The importance of an ample supply of pollen for bees during the winter and early spring is being emphasized at present. It stands to reason that a colony occupying a two-story or food-chamber hive will have more comb space for pollen than will a colony occupying a single-story hive. In other words, twenty combs are likely to contain more pollen than ten combs.

We do know that, as a rule, food-chamber colonies are more populous in the spring and, in fact, throughout the season, than are single-story colonies. It seems reasonable to assume that the more adequate comb space contained in a two-story or food-chamber hive helps to insure a more abundant supply of pollen, which in turn helps to produce more populous colonies, also to insure better wintering and larger honey crops.

• • •

Penny Wise, Pound Foolish

There are a large number of beekeepers who can't afford (or think they can't) to take a bee journal nor go to a convention, and yet those same beekeepers with a false streak of economy are selling their honey from a half to a cent and a half less than the carload market and depressing the market for those who know what the prices should be. Those who take a bee journal should labor with those who don't and show them that where they are saving the price of a journal, $1.00, they are actually losing hundreds of dollars by being "penny wise and pound foolish."

And this is not all. Some large producers are using antiquated and wasteful methods when, if they would read up or go to a convention they could learn of some shortcuts that would save both in labor and material.

It is a fact known to the publishers of bee literature that the majority of beekeepers do not take a bee journal. Some say they let their subscriptions run out and forgot to renew—too much trouble, and yet they allow their wise neighbor to scoop up the higher prices.

In a larger way a big percentage, perhaps the majority, of voters don't read up

on the issues of the day; know little about the government, and care less, and yet make an awful roar about taxes. In these days of cheap agricultural papers, cheap newspapers, free speech, and radios that broadcast prices and free information, there is no excuse for such ignorance or indifference.

Moral: Beekeepers, for your own sake, get your neighbor who is cutting prices both retail and wholesale, to take a bee journal. He won't listen to what you say about prices, but he may listen to what Uncle Sam says in the market reports.

• • •

What's the Use of Knowing So Much, Etc.

We have quoted Josh Billings in this before. This means that what we once thought was good orthodox teaching may be so no more. For example, it used to be said that an excess of pollen was the direct cause of winter losses. Scores of articles were written fifty years ago trying to prove the pollen theory. In brief, it was held that pollen caused dysentery; therefore, one must remove all pollen combs, extract all the honey and feed sugar syrup which, of course, would contain no pollen.

It has taken many years to prove the fallacy of both of these dogmas. Twenty years ago Dr. C. C. Miller began to doubt the value of exclusive sugar syrup as a winter food. Years later Demuth began to preach natural stores and a super of honey.

Now comes Chas. A. Reese, Prof. H. F. Wilson, Mykola H. Haydak, C. L. Farrar (see page 452, American Bee Journal), showing that pollen is a food for adult as well as larval bees and that most emphatically pollen does not cause dysentery. Again Reese, the oldest bee inspector in U. S. from standpoint of years of service, says that in localities where pollen was scarce last fall in those same localities winter losses were the heaviest and that conversely, where pollen was the most abundant the winter losses were the lightest. He says he has any amount of data to prove his statement. See also article by Farrar, first column, page 593, this isuue.

Formerly we were told that six inches of packing on the sides, ten inches on top, and four inches should surround a colony for winter. Now authorities, including Hambleton, of the Bee Culture Laboratory, Washington, D. C., agree that less than half that is better.

Once more, we used to say that the winter entrance should be contracted. Again, Reese comes forward with the statement that these small entrances last winter were clogged up with dead bees and, of course, the bees in the colony died. He goes further and says after a careful survey of Ohio that colonies with wide or full size entrances wintered better than those with restricted entrances. Do you all agree?

Recognizing the danger of the lower entrance being clogged with dead bees or ice, we have been using in addition a five-eighths hole entrance half way up the front of the hive. We call this our safety valve because it never can be clogged.

These statements were made at two recent field meets and we have asked Mr. Reese to present to us the full data that he has and this he has promised to give in the near future.

• • •

A Bee Culture Laboratory in the White Clover Belt

There is every reason to believe that the next Congress, no matter how the election goes, is disposed to appropriate the necessary funds for a bee culture laboratory somewhere in the white clover belt.

Our readers have been told of the fine work being done by the Bee Culture Laboratory at Baton Rouge for the Southland. (See last two issues of this journal.) We shall tell what is being done by the station at Beltsville, Md. We hope soon to tell what the stations at Davis, California, and Laramie, Wyoming, are doing, for the far West and the mountain region; but we need now a station that will take care of the needs of the white clover belt covering Iowa, North and South Dakota, Minnesota, Wisconsin, Michigan, Ohio, Kentucky, Tennessee, New York, Pennsylvania and all of New England. There are more beekeepers in this area than elsewhere in the United States. White clover honey is the standard by which all other honeys are compared. Jas. I. Hambleton is the man above all others who can coordinate all the stations into one effective unit.

If, and when, the central states station is granted, the Secretary of Agriculture

XUM

or some disinterested party should decide where the station is to be located. In the meantime, let us keep the location out of the picture.

• • •

Afraid of the Carbolic Acid Method

Said a honey bottler who has a large suburban trade delivering honey to groceries and to private families, "I am afraid of this new method of removing honey by the use of carbolic acid."

This brought the response, "Commercial honey producers save time and are using it very successfully. There is no taint to their honey."

"Yes," he replied. "The method is all right in the hands of those who use the pure crystals and follow directions, but don't forget this, that there are some 'slobs' in the business who are careless and so taint the honey. Let the newspapers get hold of and publish stories about carbolic acid in honey and our game is up. You bee journal editors should discourage the use of the carbolic acid method."

Question: Are there cases on record where honey has absorbed the carbolic odor so that it is noticeable by the smell or taste?

There is no question but that the plan saves time; but does it or does it not leave a taint to the honey? Let us hear from our readers. If there is an odor just after removing the honey, will that odor disappear?

• • •

Long Live the Institute!

American Honey Institute will live indenitely. There may be a few who still believe that American Honey Institute is a bit wobbly and may not be able to secure financial support indefinitely.

Well, just what the future may bring no one can tell, but from all the reports that are coming in, we may safely say that the Institute is stronger than ever and at every beekeepers' meeting where the Institute was mentioned this summer, only high praise was given for the good it is doing to the beekeeping industry. It is now splendidly organized, with departments of consumer education, recipe testing, and finance.

For the first time in the history of the honey industry, thoroughly tested honey recipes are available. Hundreds of thousands of honey leaflets are being printed and distributed by the Institute, "uses of honey," "comb honey," "canning," and soon we will have a new one on "honey for children."

• • •

Price Trends on the 1936 Honey Crop

During the early part of the season after the drouth through the white clover belt had begun to spread, it began to look as if the aggregate honey crop for the East would be short in spite of bumper yields in some sections, but late rains and unexpected yields from alfalfa* in many of the clover sections have changed the picture somewhat. It would appear from the latest government reports and recent surveys that the yield of table honey may be equal to or better than that last year, which was below normal. The crop of amber and dark honey is probably nearly normal. If so, that may take care of the needs of bakers, candy men, liquor dealers, and the tobacco manufacturers. While we can not say positively, it is quite possible that prices in car lots have reached their peak. Whether those who are and have been holding for better markets shall now sell, we are not prepared to say; but we do know that some who held for higher prices last year were disappointed and had to sell for less than some of their more fortunate neighbors who sold early and realized the peak of the market.

If the manufacturers (bakers, candy, liquor, and tobacco) using honey should refuse to pay the higher prices that some beekeepers are asking and use the much cheaper invert sugar, the general market may take a slump. It might take years to get them to using honey again.

A good barometer to watch is whether numerous buyers are still soliciting shipments of honey. If not, look out that you are not caught on a sagging market. The one who has honey to sell should read carefully the government report in this issue.

*As an explanation why alfalfa honey is so much in evidence in the eastern states this year, it is pertinent to note that C. J. Willard, Agronomist for the Ohio State University, possibly the greatest authority in the United States on alfalfa and sweet clover, says the drouth favors alfalfa and that in a dry season perennial plants like alfalfa store a larger proportion of their total growth in the roots than in a wet season. It is evident that this year with its hot weather was peculiarly favorable for the secretion of nectar from alfalfa in the East.

From North, East, West and South

SOUTHERN CALIFORNIA, September 4

Weather: As the days begin to shorten and the nights get longer, all nature as well as the bees begins to prepare for winter. No rain of any consequence has fallen since our last letter and the country is still very dry. Being naturally a country of scant or no rainfall during the summer months, we do not mind the dry and dust as much as they do in some parts where they have the summer rains. We usually look for some rain during September but do not always get it.

Honey Crop: Beans and alfalfa yielded a little as the season slowly closed. This left most of the colonies in those locations in good shape for winter. It looks more and more that the only thing to do is to move your colonies during these dry years so as to catch such honey flows as you can where irrigation is practiced. What will happen when all beekeepers practice migratory beekeeping is hard to visualize.

Prices: Honey and beeswax prices firm, at or near same as last month.

Miscellaneous: Migratory beekeeping, when we entered the ranks, was practically unknown as compared to the magnitude under which it is practiced today. One has only to look around to find the most successful beekeepers are the fellows who tote their bees around from place to place where they find the most promising prospects. It certainly entails lots of hard work and is more or less a young man's job. Permission to locate is not always secured, as often there is vacant or unproductive land near by and a few hundred colonies of bees can often be placed there for a few weeks during the honey flow, and no objections raised. Nevertheless it is always wise to get permission from some one and then you have a certain right. The millions of dollars spent on roads in California has so shortened distance that a few hundred miles are no obstacle when a beekeeper thinks the pasture is better over there. Load a hundred colonies in the early evening and have them on the new location ready for work next morning hundreds of miles away. And strange to say, some of the most successful are reported to be moving without closing entrances. This might be all right if all goes well and the beekeeper knows his business, but we would advise trying it on a small scale at first until you are sure of yourself in all particulars, as a small slip might cause a world of trouble. We have some large producers who are sincerely desirous of securing locations where they can produce honey year after year and not have to move.—L. L. Andrews, Corona, California.

• • •

NORTHERN CALIFORNIA, Sept. 4.

Weather: September 1 brought the first real thunder storm to the mountain districts. This adds to the 57 varieties of weather we have had throughout the entire honey season. What effect it will have on the remaining honey plants nobody seems to know. At this time in the season we have a greater variety of plants producing a little honey than earlier in the season when the standard plants are at their best. It is time for the beekeeper to add variety to his planning—not that there has been any shortage along that line this season. In fact, it has taken an active mind to keep up with the sudden changes that have made beekeeping difficult the past season. The spring flowers were early; this same thing has been true of many of the honey plants. We expected more to be early and they came late, thus adding to the beekeeper's troubles.

Honey Crop: Now that the season is ending we have no bumper crops to report. Some have harvested a fair crop; some a medium crop and altogether too many the poorest crop in years. In fact, some did not produce enough to pay rent for locations. The first class had their bees in excellent condition for the first honey flow and kept them in that condition during the entire season—never late in changing from one flow to another. To belong to this class a beekeeper must be up-to-date in every way; he does exactly

XUM

the right thing at the right time. He will have a fair crop.

The second class has a poor crop, not always because of failure to be ready. He had poor prospects at home and pastures looked greener a distance from home. The weather was hot for the long move and his bees suffered. When he reached his destination he found the field crowded. This was especially true of the star thistle district where thousands of colonies of bees were moved in from distant places.

The third class are beekeepers who were not in a position financially to face a poor season such as we have had in 1936. There are too many of this class and we have not found a way to assist them. It seems a case where they must help themselves or be eclipsed by the bigger ones.

Miscellaneous: The up-to-date beekeeper realizes that he is facing his new year, and queen rearing is rapidly going on for increase and requeening. Before this appears in print the last extraction will have been made and most of the bees will be in winter quarters. Though this has been a bad year for beekeepers more than the usual number are planning to attend the State Convention at San Bernardino, December 2, 3, and 4.

California will be represented at the National Convention at San Antonio in November.—Cary W. Hartman, Oakland, California.

• • •

TEXAS, September 1.

Weather: The weather throughout August was rather adverse to the bees. The first twenty-four days were very hot and dry. High temperatures up to 106 degrees lasted for many hours during the days. As a consequence, very little was in bloom and the bees consumed considerable stores. Reports throughout this section show that there was little nectar from cotton. This plant, however, is still in good shape and with the heavy rains which occurred the last week in the month there will probably be a fall flow not only from cotton but also from broom weed and other composites.

Honey Crop: Producers and honey buyers report that the spring honey crop has mostly left the hands of the producers. A few large stocks are in the hands of men who are holding against a rise in price.

Miscellaneous: Already inquiries are being made as to places for the wintering of bees by package shippers. The chief interest seemed to be centered in the Gulf Coast section of the state.

As near as can be estimated, more poison was applied to the cotton this year than ever before, but for some unknown reason there has been but little complaint about cotton poisoning. The supposition is that the foresight of the beekeepers in moving bees and the extremely hot dry weather which occurred while the poison was being put on kept the bees at home.

Northeastern Texas and south central Texas report that the honey crop so far is normal or above, a thing which is pleasurable as these sections have made small crops during the past few years.—H. B. Parks, San Antonio, Texas.

• • •

ARIZONA, September 3.

Weather: It has been very hot here through July and August, although we had very fine rains, especially in the higher elevations. We can usually count on good rains here when there is a drouth in the East. Our rainfall is light here in comparison with eastern sections. In one location on the lower Gila River above Yuma it has rained only once since early spring.

Honey Crop: A honey flow is now on in the Salt River Valley from cotton, alfalfa and tamarack. I have not heard how the yield is turning out in comparison with last season, but believe it will be about the average.

Honey Sales: Honey buyers have been very active and there are very few large lots of honey left. Prices are about the same as last season. This season's crop will be gone before more is produced.

Miscellaneous: About July 10 the writer lost about 240 colonies from hot winds. The colonies were completely killed out in a period of about three days. The winds were so hot that bees could not fly out for water. Some colonies had considerable bees dead on top of frames. Had all covers been raised or ventilated, it is possible that the bees would have lived through. Another summer will find colonies in this area well ventilated at top

to allow a good circulation of air. Bees have been in this particular area for many years, and this is the first time they have been completely killed out. Only a few combs melted down. Supers were stacked, rimmed with mud and small bottles of High-Life were put in to keep frames free from miller moth. Supers will be used again in spring to be refilled with swarms.—Leslie Wedgworth, Oracle, Arizona.

• • •

SOUTHWESTERN IDAHO, September 8

Weather: The weather for the summer has been warm with a few hot periods, but not over 105, most of the time around 90 degrees, which was good weather for nectar secretion. We had an occasional wind storm with some showers through the summer.

Honey Crop: The crop for the state as a whole will be short again this season, some report from 40 to 60 pounds. One party in eastern Oregon, on the line, reports he will have 180 pounds but most producers figure on a 60-pound average or a little better. The prospects looked very good early in the season. During June, in spite of rainy weather, bees made a good showing where colonies were strong, but the latter part of June and first of July they didn't do much. About July 12 our main flow started and lasted about ten days. Since this time they have barely made a living. Up until the last week they have been working on alfalfa and sunflower, but it is too late in the season to expect much. Some colonies, however, are making a good showing and if our weather, which is between 80 and 90 degrees, continues, we might get something more. The honey is of a good grade this season and should demand a fair price.

Honey Sales: Most producers are holding for six cents. Some has been moved at five and one-half cents, and at this time this seems to be about all the buyers are offering. Five-pounds pails are moving at $4.50 a dozen to wholesalers, which is about the same as last season with a better grade at this time.

Miscellaneous: The Idaho State Fair was held at Boise August 24 to 29, with a large attendance. Prizes on bees and honey were not offered, which probably was due to the lack of interest beekeepers have taken in the past. My exhibit of bees and honey was the only one, and I am sure if we let them know we are interested they will offer prizes in the future. A state that produces as much honey as Idaho does should recognize this industry, and we have no one but ourselves to blame.—A. D. Wood, Boise, Idaho.

• • •

NEBRASKA, September 8.

Weather: This summer has broken all previous records for heat and drouth. Welcome, though light, fall rains have begun and bees may yet gather a sufficient supply of smartweed honey upon which to winter, if killing frosts are somewhat delayed.

Honey: Little or no surplus honey has been taken from the bees. The quality of that produced is exceptionally fine and heavy bodied. Yellow sweet clover bloomed about two weeks in advance of the usual date, which indeed proved a blessing. Bees made the most of this flow. We had never seen such abundant bloom on sweet clover. Prospects were bright for a big crop. White sweet clover started to bloom, then came the excessive heat and hordes of grasshoppers. In years past, sweet clover has repeatedly proven its worth in resisting drouth, and has been the beekeepers' faithful standby, but it proved defenseless against the hordes of hungry grasshoppers which stripped everything green in their path. One cloud of hoppers, one hundred and eighty miles long and fifty miles wide, flew over us but lesser hordes were enough to ruin clovers.

Honey Market: Demand is brisk at slightly higher prices. Many producers are buying honey to meet the demand.

Miscellaneous: Many package bees were purchased this spring on the strength of the most promising of prospects. In some cases, beekeepers borrowed the money for this investment.

A California beekeeper moved 2500 colonies of bees into an irrigated section of northwestern Nebraska. He has not taken a pound of surplus honey from these bees and suffered a severe shipping loss. He advises us not to be discouraged—to stick by the bees. One admires such spirit!

So few bees have survived the cold and drouth of the past two seasons that an inspector may drive all day over familiar ground and fail to find one colony. The

XUM

package bee business should boom next year.

Some beekeepers plan on uniting colonies, in an attempt to carry as many through the winter as possible. The success of this endeavor will depend largely upon the length of the fall honey flow. Frequent rains are aiding honey plants and reviving flagging spirits so that we begin to plan for a better season next year.—Benjamin Nielsen, Aurora, Nebraska.

• • •

IOWA, September 8.

Weather: Spots of rain occurred during August and part of September in sufficient number to cover practically all of the state. The rainfall was sufficient to change the complexion of the outlook. One of the last places reached was Ames, which enjoyed 4.3 inches of rain in a period of about four hours. The ground was sufficiently dry so that all of the water was absorbed immediately with no indication of any run-off.

Honey Flow: The honey flow has exceeded the expectations of the most optimistic, and many indicate that their colonies have been bringing in honey almost every day in quantities which would result in a total colony gain. One reported on the first of September that his colonies had built out foundation and stored honey, completely filling a set of combs during the latter part of August. This is unusual, considering conditions which existed during the latter part of May and the forepart of June. It is difficult to say what the total crop may be compared with normal or compared with the output of last year.

Miscellaneous: The colonies should go into winter in excellent condition. There will be the possible handicap of a lack of young population, but surely there will be plenty of stores. The prospects for next year's honey crop is a matter of concern for a large number of producers. The drouth has resulted in the killing out of a large proportion of the seeding of legumes which was made this year in compliance with new soil conservation program. In only a few instances has it been possible to attempt to grow legumes. This may mean a definite shortage of legume pasturage for bees next year. That means that every producer must be keenly alert to the legume acreage within range of the flight of his colony.

Many of the producers in Woodbury County this year find it to their advantage to move to new territory to the North and East. Reports indicate that highly satisfactory results could be obtained in the way of a honey flow from these two locations. It is evident from this experience that there are many acres of virgin territory in this state where honey production can be made profitable. It also indicates that there is no opportunity for a successful producer to sit down and wait for a honey flow to come to him, but it is necessary to determine where the best honey flow conditions exist and to get the bees in those conditions. This moving of bees has its handicap on account of disease contamination.

One of the outstanding county exhibits in the Agricultural Building at the State Fair was that of Butler County under the supervision of County Agent Van Wert. The central feature of this booth was composed of a placard entitled "Bees and Clover Are Inseparable." Under this placard was a one-frame observation hive banked on either side by a large bundle of clover. Under the observation hive was another placard, "Bees Pollinate Clover and Produce," in the center below three sections of honey and on either side of the honey clover seed, white dutch, alsike, yellow blossom and white blossom sweet clover. This booth proved to be attractive as well as unique for it is very definitely of a different line of approach than has been attempted by any other county at any time.—F. B. Paddock, Ames, Iowa.

• • •

SASKATCHEWAN, September 10.

Weather: Spring in this province was much later than usual and many beekeepers who had ordered their bees for April rushed wires south to have the shipments delayed. May brought fine warm weather and bees went ahead rapidly. Rains during the spring and in June made us all feel that the long drouth was over, but July brought the same withering hot weather that was experienced all over this continent. Not a drop of rain fell in the north of the province after June in most districts until this month. The crop seemed to wither away and our hopes for a honey crop rapidly diminished.

Honey Flow: The spring flow was satisfactory in all districts and colonies were in good condition for the main flow by the first of July. Sweet clover commenced to yield during the first week of July and the bees began to store rapidly. The hot weather came on then, but although we expected the flow to stop, it carried on continuously until the end of August. Scale hives located at various places over the province showed remarkable gains. In the north of the province one hive at Tisdale registered a gross weight of 385 pounds, while another hive near Melfort registered a gross weight of 513 pounds by the third week of August. Many other scale hives were just as good as these. The average production per colony should be very good. Some apiaries are averaging over 300 pounds per colony. This large crop constitutes one of the biggest and most pleasant surprises that we Saskatchewan beekeepers have ever had. In the past six years we have become used to dry weather, but this is the first dry year that has produced such a honey crop. It is all the more welcome in that we had practically despaired of obtaining much honey this season. Probably the only thing which saved the situation was the good precipitation we had last fall which supplied sufficient moisture to carry the sweet clover through the summer.

Miscellaneous: Honey produced this year is about the best we have ever had. It started to move onto the market much earlier than usual. Demand is brisk and the larger crop we have is moving just as easily as last year's crop with prices well maintained. A failure in the fruit crop of British Columbia and Ontario has caused the price of jam and fruit to rise and many are expecting the price of honey to follow before long. The prospects for next year are in doubt at the present time for clover did not catch any too well this spring and shows very little growth at present. A general rain last Saturday will promote some fall growth if the weather continues mild.

Bees will, of course, go into winter quarters with lots of stores as there is some flow on even at the present time. With any reasonable winter, they should come through in good condition. Our next year's success depends mainly on whether or not clover is able to establish itself this fall.

As has been the practice for the last three years, we are again exporting some honey to the British market. We expect to ship through the port of Churchill and the Hudson Bay as we did in 1934. Both the rail and the ocean haul are much shorter via Churchill and the Hudson's Bay.—R. M. Pugh, Regina, Saskatchewan.

• • •

TENNESSEE, August 26.

Weather: We had abundant rains during the first fifteen days of July following a 90-day spring drouth. Colonies having surplus stores at that time built up rapidly for fall flow. Yards with the surplus stores for brood rearing were boiling over with bees by August 15, but our second drouth of the year had already begun, the last rain having fallen about the middle of July. At present the thermometer is standing 100 degrees and fall honey plants are drying up rapidly.

Miscellaneous: The fall drouth of 1935, spring drouth of 1936, and the present one are trying to even the most rugged beekeepers. Decisions are being reached, even by those who have never given it much thought, that a colony of bees must really have honey, and to spare, in order to ride out a year's drouth. One beekeeper reports he (by oversight) left a full depth body of honey on one colony last fall and that it built up to almost bursting point in bees this spring. He practiced the Demaree swarm control plan on this particular hive April 1, placing the queen in full-depth body of empty combs with excluder above, with the two full depth bodies of stores and brood above excluder. This rousing, boiling-over colony made no attempt to swarm as the queen had plenty of egg-laying space, and as the congestion above excluder was growing less each day. This colony was ready to jump right on the locust flow, gathering sufficient stores to stand the two drouths of this year. A half-dozen colonies, adjacent to the foregoing, in single full-depth bodies, with shallow super food chamber above excluder, went to pieces by swarming and are now at the point of starvation.

Similar satisfaction is being expressed by a good many beekeepers regarding use of two full-depth bodies for the queen, and an entire use of full-depth equipment throughout their apiaries, pointing out the advantages of rousing colonies in their ability to prepare for a drouth on even a

XUM

short flow, and the ease of producing the Demaree swarm control plan.

One beekeeper reports boring a $\frac{5}{16}$-inch auger hole one-half inch above the lower edge of the end of the full-depth bodies for freeing drones from above the excluder in his use of the Demaree swarm control plan. A Porter bee-escape is placed over the $\frac{5}{16}$-inch hole to lessen interference from robbers and to prevent a virgin queen from mating and returning to full-depth bodies above the excluder, which are at that time for use as honey storage space and not for rearing brood. It was pointed out by one beekeeper that should a virgin pass out through the escape, she could only return to hive through the bottom-board entrance and would probably take charge, killing the old queen. If so, this would be a good result.

Another drouth-ridden beekeeper thinks he will never put another shallow or half-depth super on his colonies, this after observing the full-depth body operations above, saying also that he would be able in normal years to produce adequate supplies of chunk comb honey in full-depth bodies, not, however, divulging his plans at the moment (the 1935-36 drouths may be blessings in disguise.)

Still another, drouth beset, said he had reached the limit of his patience and cash in cutting out thin super foundation ruined, partially drawn out, and travel stained in the drouth, and that he was looking for something simple, adding that he had become so mixed by reading the many plans in the bee journals that he was going to try to figure out his own problems. —H. L. Rushing, Nashville, Tennessee.

• • •

SOUTH LOUISIANA, September 4.

Weather: August was marked by almost daily thunder showers with maximum temperatures of from 92 to 95 degrees. September has started off with clear bright days, with cool nights averaging about 75 degrees after 10 p. m.

Honey Crop: August rains robbed us of late flow from blue vervain. This weed is the best nectar producer we have from about April until frost. However, it takes two dry days in succession to make it attractive to the bees—one rain seems to wash away the nectar from the exceedingly small bloom, the hot sun of the succeeding day being required to again encourage secretion. Scale hives which were showing small, steady losses are again recording their daily pound or more. This seems small when we compare it to the boasted 6 to 8 pounds per day of some of the northern states, but the possibility of a production during six months or more, usually means a production of from 100 to 150 pounds per colony. Some of us will make this average—mostly, we will show about 100 pounds average for this season.

Market: Small producers are offering bulk honey at from 50 to 60 cents per gallon. We are slowly getting to the point where we ask a price per pound. Local bottlers are beginning to worry about stocks to carry them through the winter, and small lots are meeting with ready sale, although the pric is stiffening from day to day. Two offerings in this morning's mail asked 6 cents per pound.

Miscellaneous: In this, my first appearance as reporter under N-E-W-S, I feel overawed by the importance and the experience of the seasoned reporters whose notes I have been reading for so many years. I am just brimful of things to say —and can not find expression for my thoughts. A kindly letter from President E. R. Root, received this morning, has added to my confusion as I was already "all a-flutter"—this being the 42nd wedding anniversary. Forty-two years of a beautiful friendship and a satisfying companionship. It seems but yesterday when our little daughter arrived—then, in the fullness of time there were two little granddaughters—and now, a wee great granddaughter—our cup is full, and together we are sipping sweet memories. Even the bees can add no sweetness to this moment.

We are entering a campaign to control a serious afb situation in this immediate locality. One man has threatened the security we have enjoyed during the past twenty years, and several small honey producers have suffered through infection from this source. It is a fortunate circumstance that we have no important package shipping industry in this immediate locality, but the threat can not be ignored, and we are lining up our defenses to combat this menace from another state. A committee from our State Association is working with Mr. W. E. Anderson, State Entomologist, in going over our state laws

to determine if any added legislation is needed to reach the culprit. The general opinion is that our laws are sufficiently strong to meet the emergency, and affidavits have been made and warrants are out for the apprehension of this violator of quarantine regulations. We have no desire to persecute this man, but, in the end, he will be impressed with the fact that Louisiana will protect her bee industry, even if we do inconvenience those thoughtless—or selfish—persons who insist in moving infection—or used equipment—into this state—without adequate inspection and certification. We have already asserted our "might" and the several fires in these yards have destroyed more than 150 colonies to date—more will follow as infection shows up. We are sorry for this man, but he will have to cooperate or be destroyed—he can choose his own course. In one direction he will travel alone—he would find the other road "crowded with friends."—Geo. W. Bohne, Luling, Louisiana.

•••

WISCONSIN, September 5.

Weather: In June, July, and early August every heat record for Wisconsin was broken. Let us hope that those who blame the drouth to the destruction of trees are wrong. And that the U. S. Weather Bureau officials are right—the drouth is only a phase of a long weather cycle and that in time normal climate will return. It was a hot summer and Wisconsin folks were not very happy about it. Now that rain has occurred regularly for two weeks they are bragging just a bit about their new high records.

Crop Prospects: The beekeepers started out with the best prospects they have had for years. Early indications were for a bumper crop, but when the dry spell started and continued day after day, with little or no rain, the bumper crop faded and did not return to many beekeepers—particularly in the southern part of the state. Instead of making gains the scale hives were dropping off a little bit each day until many beekeepers feared that the crop they had already secured would be used up by fall.

The picture is somewhat different at the beginning of September. Drouth conditions were extremely bad and many pastures were completely burned. The clover disappeared and the prospects were not very bright for the next season, but with heavy rainfall since the middle of August, a new seeding of clover has appeared and with sufficient moisture in the spring of 1937 crop expectations should be excellent.

While the state is spotted, most of the beekeepers in the northern part of the state have a fair surplus and one or two report the best crop in five years. Also, alfalfa and sweet clover started to secrete again the middle of August and there has been a more or less continued flow—with some days only enough to keep the colonies going and on other days quite a gain.

Reports from various beekeepers and trips into the field indicate that there should be an average crop production of about fifty pounds per colony. The honey is better in weight, color, and flavor than for more than ten years.

Miscellaneous: Reports from package bees indicate that they did not do so well as the over-wintered colonies, as many packages were not able to build up sufficiently to collect the nectar which started flowing this season about ten days earlier than usual. The top and middle entrances are becoming more popular and many of the commercial beekeepers are now using one or the other plan.

Bee meetings have again become popular and attendance at both district and county meetings has so far been unusually good.

There is a little talk about honey prices, but nothing has yet been done in the way of an established price, so retail prices by beekeepers vary considerably. There is a decided improvement, however, and beekeepers have an opportunity to improve price conditions. Several lots have been reported sold at 7 cents.

The inspection work has been slowed up quite a bit by a lack of adequate funds, although more counties than usual have appropriated funds for local inspection. A determined effort is now being made to secure an increase in the appropriation for foulbrood eradication at the next session of legislature.

An unusual event has occurred in a recent request for two carloads of basswood honey. We just wonder if there is any place in the United States where a car-

XUM

load of pure basswood honey is produced.

Nosema Apis was very bad in Wisconsin through the entire season and bees are still dying. If this condition continues, some serious effort will have to be made to find a ready method of combating this disease. It has been evidenced by the bees crawling away from the hives and dying in large numbers in low places.—H. F. Wilson, Madison, Wisconsin.

• • •

OHIO, September 8.

Weather: Conditions over the state during the past month have been favorable for the beekeeper. Rain has fallen in all sections with an excess amount of the much-needed moisture in the central portion. After the long dry spell, in which four counties of the state have been included in the drouth area, everybody was glad to get soaked in this manner.

North: Goldenrod flow is reported good with aster flow to follow. Bees in most of this locality are reported to be in the best condition ever known for going into winter quarters. Plenty of brood-rearing still reported and a few swarms.

East: Conditions reported in this section of the state correspond very favorably with that of the North.

West: In this section there appears to be very little goldenrod or aster and the nectar flow for this year is just about at a final finish. Colonies, as a rule, are of enormous strength and there is still some brood rearing.

South: Colonies are in pretty good shape but not as good as in other parts of the state. Beekeepers in this section played to pretty hard luck this year, but we all sincerely trust that next year they will produce a bumper crop to make up for their loss this year. Stick to it, fellows, you can't always lose.

Central: A fair crop but not up to par. Honey flow still lingering on, but slow. Goldenrod, aster and smartweed just starting. Colonies in extraordinarily good condition with brood-rearing equal to that of spring.

Honey Crop: Some sections almost up to par. Others way below. I would judge that the average over the state would be about 60 per cent of a full crop.

Market: The market appears to be on a slight upward trend and many of the commercial producers are holding their honey for a better price, while others are taking their profit early. In Columbus there is considerable "out of state honey" being shipped in at prices within the reach of the baking trade.

Miscellaneous: On August 13, 14, and 15, the summer meeting of the Ohio Beekeepers' Association was held at Delphos, an account of which will be found elsewhere in this issue.

In behalf of the Association we wish to thank Mrs. Leininger and family for their wonderful hospitality, the Tri-County Beekeepers' Association for their full co-operation and kindly assistance, the Delphos Civic Club for their excellent free lunch served after the meeting on Friday night, and our thanks and appreciation to the good Methodist ladies who so excellently served our banquet.

Next on the list was our big state fair at Columbus. The fair was from August 31 to September 15. I feel safe in quoting that we had the biggest and best display of honey ever exhibited at this fair. There were 12 complete exhibits and 15 exhibits in the water white class. The Ohio Beekeepers' Association sold honey during the fair with a total sales of approximately one thousand sale transactions. About 15,000 circulars concerning honey and its many uses were handed out to a crowd in excess of 300,000 people during the fair week. Mrs. Jensen of the American Honey Institute of Madison, Wisconsin, spent the week with us at the fair and made some wonderfully inviting and attractive demonstrations in cooking with honey.—W. A. Coulter, Columbus, Ohio.

• • •

ALABAMA, September 7.

Weather: Conditions have been far from ideal this season, but they have been nearer an average than for many years with the exception of the extreme heat. Honey producers have received an average crop and package shippers and queen breeders have enough for winter stores. The extremely hot weather caused unusual losses of queens by mail this summer. The loss was the highest that we have ever known. The rainfall has been sufficient to develop the fall plants and bring up the clover for next season.

Honey Crop: Due to the number of packages and queens that are produced in Alabama each season there is not enough honey produced here to care for the local demand and each season many tons of honey are shipped in by local beekeepers and wholesale grocers. This will be necessary again this season, although the local crop was better than for several years.

Colony Condition: Annual requeening has about been completed and colonies are in good condition for winter.

Honey Flow: The flow from partridge pea is about over with little left for the bees but aster and that has not started blooming yet.

Miscellaneous: Inquiries are coming in about package bees from beekeepers who contemplate killing their bees and replacing them with packages in the spring. With a prospect of a shortage of honey and a severe winter predicted by scientists this method of beekeeping will probably be practiced more than ever before. Southern shippers are beginning now to prepare to care for this demand, but it is always wisest to buy packages long before they are wanted as it often happens that when they are wanted in a hurry, there are none available.—J. M. Cutts, Montgomery, Alabama.

• • •

GEORGIA, September 8.

Weather: Summer showers have covered the state and the effects of the drouth can hardly be detected, but there has been no general rain as yet. The summer and fall honey plants are all out in their glory, which brightens up our prospects for a flow sufficient to winter the bees and abundance of young bees for the winter.

Honey Crop: The spring crop throughout the state has almost been normal. Much better in the Coastal Plain region than has been the case since the West Indian hurricane of 1926. Mexican clover, our new summer and fall honey plant, and the greatest in importance since the day when cotton was in its glory, has well covered the soil as far up as the Piedmont section, and it is rapidly making its way on to the Blue Ridge. Beekeepers from a great distance are now moving their bees into the Mexican clover region for the amount of surplus they may store as well as for the production of bees. Yellow slender goldenrod is also making great headway, spreading out over all un-cultivated areas. No surplus is expected from this source, but when it is over, bees always have abundance of good stores for winter.

Miscellaneous: The Georgia State Beekeepers' Association will be in session on September 16 and 17, at Tifton, which is a central point, and while our attendance has always been reasonably good, we expect a much larger attendance this time, because of important business. Prices of honey are too low, and in view of the fact that all other eatables have advanced, the beekeepers are coming together in this behalf. Then, too, of great importance is the appropriation for bee disease eradication.—J. J. Wilder, Wayeross, Ga.

• • •

CONNECTICUT, August 31.

Weather: July and August were hot, but several showers and a couple of good wet nights were sufficient to keep the bees working. This was especially true of the southern portion of the state where sumac is abundant. Clover did not do as well.

Honey Crop: Reports are that several of the New England states, including Connecticut, will harvest a larger crop than in several years and of superior quality. There will be a bumper crop of sumac undoubtedly, bees filling supers in a week, even at this late date (August 31). Beekeepers who are located in a sumac section this year especially, if there is the early and the late variety, are very fortunate. I have some reports within the last few days of honeydew.

Miscellaneous: The Connecticut Beekeepers' Association held its summer picnic at the home of R. W. Gillette, Watertown, June 25. About one hundred attended. Mr. Gillette's place is among the Litchfield hills where plenty of wild flowers abound for the bees as well as the cultivated variety. All returned home satisfied with a day well spent. The day at

XUM

the Connecticut Agricultural College, July 31, also was very instructive and entertaining. P. E. Crane, of Middlebury, Vermont, and George Rea were the speakers.

On the whole our honey crops have been a failure for the last four or five years and beekeepers were beginning to think that they would never get another good crop, but this will undoubtedly give them courage to go ahead with greater confidence another year.—A. W. Yates, Hartford, Conn.

• • •

ONTARIO, September 7

Weather: This is Labor day. With very few exceptions little surplus honey is gathered here after this date.

Honey Flow: As predicted in last Gleanings, buckwheat is practically a failure in many parts of the Province and will be very scarce. I understand that some exporters have had to cancel their commitments owing to their inability to secure the honey for shipment. The drouth was broken locally about August 23, too late for the buckwheat crop. Buckwheat here in Ontario needs hot, moist weather.

The second crop of alfalfa yielded slowly for three weeks or more in August and some yards have an average of 50 pounds of this honey. In some cases it is slightly flavored with buckwheat. Other yards have stored little since clover was taken off and our September extracting will be less than half of what it was a year ago. This applies to the counties of York, Ontario, Wentworth, and Victoria, where our bees are located.

While the recent rains have brightened up the pasture fields, little evidence of white clover is seen and farmers tell me that their alsike sown this past spring is mostly all killed. While it would require an optimist to expect a crop of clover honey next year, yet we can never tell what may happen in beekeeping, so it is useless for us to worry over matters that are beyond our control. This clover prospect does not, of course, apply to all sections of the province as the eastern parts were well blessed with rains and prospects are good for next year. Prospects in some sections of western Ontario are much better than they are with us.

Prices: The demand for honey locally has been the best ever and over 10,000 pounds have been sold at our door. Prices have averaged a cent a pound over last year and we have had no complaints as to price or quality. The quality, by the way, is the best we ever produced, equal, I believe, to the heavy western honey that we see at the Canadian National every year. Color, body, and flavor are all of the highest order and I wonder if any better honey is produced than that taken from alsike and white Dutch clover. We have in the past produced a lot of sweet clover honey, and while it is a good honey in our estimation it is in an entirely different class than that taken from alsike and white Dutch clover. Of course, I expect to hear different opinions on this matter, but that certainly expresses my opinion, and I believe that I am speaking without prejudice.

Miscellaneous: In the last issue of Gleanings I said that sweet clover never produces much honey here during dry hot weather, and in the same issue my friend Floyd of Manitoba said that sweet clover will not yield in cool weather as it loves the heat. These are contradictory statements, I will admit, but we are both right, as the difference is caused by geographical conditions. Some years ago I became convinced of this fact by meeting Manitoba beekeepers and hearing of their experiences with sweet clover. We had some very heavy yields when sweet clover was grown for seed and every time the yield was good we had lots of moisture in the ground, and the weather was comparatively cool, ranging from 75 to 85 F. When temperatures got above the nineties, nectar would cease and this year, as stated in last Gleanings, hardly a bit of nectar was gathered by 100 colonies near a large acreage of sweet clover left for seed, as weather was intensely hot and dry all the time.

We expect to start extracting our small fall crop of honey tomorrow. Then the feeding and packing for winter will start and before we are aware of it another year will have passed all too quickly, and again we will be thinking of conventions. "Variety is the spice of life," an old adage tells us, but with many of us it is the very essence of life and for that reason beekeeping commends itself to so many of us restless individuals.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

Honey Prevents Serious Burn

In 1932, I was operating a steam uncapping knife and used a common five-gallon screw-top kerosene can for a boiler, which stood on a small oil stove. It was my first experience with so small a boiler, yet I had previously operated a saw mill engine, so had had some experience with live steam and should have known how to operate it properly. It was my first day. It came time to refill the boiler, so I set it off the oil stove and proceeded at once to unscrew the cap. Then things happened. The cap, together with a generous quantity of water and steam, hit the ceiling and some of it hit me squarely in the face. Sometimes things happen so quickly one has no time to think. One acts instantly by a sort of instinct and thinks afterward. So it was in this case. I had an uncapping can full of fresh cappings within reach. With both hands I grabbed a double handful of cappings and smeared them all over my face. Not till then did I feel the smart of the burn. But it lasted for only an instant. The pain was gone at once when the honey touched the skin. When dinner time came I washed my face, went into the house, had dinner and no one noticed anything, nor did I ever either feel or see any effects, and to this day my employer does not know of the incident. I believe if people in general knew of both the digestive food value of honey and of its medicinal properties, not one household would be without a supply.—Arnt Arneson, Rice Lake, Wisconsin.

• • •

Making Good Creamed Honey

Part of the honey produced by bees belonging to Charles Warga, of Plattsmouth, Nebraska, is sold as creamed honey. For several years Mr. Warga has taken the lion's share of the prizes on his honey exhibit at the State Fair. His creamed honey is superior in appearance, quality, and texture, partly due, no doubt, to the manner in which it is prepared. Mr. Warga allows the honey to granulate, then places it in a power feed grinder such as is commonly used for cornmeal. Running at highest speed the granulated honey is ground until it resembles milk in appearance and is very smooth and creamy in texture. Mr. Warga bottles his product in one-pound glass jars selling it to grocers in Plattsmouth. It makes a delicious spread for cakes, waffles, bread and biscuits.—Mrs. Benjamin Nielsen, Aurora, Nebraska.

• • •

A Nice Drink Without a Kick

We get cider at the press here for 15 cents a gallon. We heat it in an aluminum kettle (gentle heat) until a white scum appears on the top, which is skimmed off. This destroys the ferment and it remains sweet for a year. To every gallon of sweet cider fresh from the press, add a cupful of previously warmed honey. If cider is from sour apples, add three-quarters of a pint of honey. Stir the warm honey in the warm cider, fill sterilized bottle until there is no empty space under the cork. Cork must fit tightly. Dip neck of bottle in melted paraffin, covering all exposed parts of the cork. We use it in our sweet wine to drink and to treat our friends.—J. F. Dunn, Ridgway, Ontario.

• • •

Hiving a Quadruplet Swarm

I had a large swarm come out. Before I could hive it the second large swarm came out and clustered with the first. Before I could hive them, the third large swarm came out and clustered with the others. I was puzzled to know what to do. Then the fourth larger swarm came out. I played water on them, but they joined the other three swarms. I was stumped. Four large swarms together! I knew where all four came from, so decided to try an experiment. I went through the four hives and cut out the queen cells. Then I shook off about one-fourth of the bees in front of each of the four hives. They entered with no fighting, were satisfied and did good work the remainder of the season.—M. D. Miller, Anadarko, Oklahoma.

• • •

Getting Rid of Moths

Any beekeeper who cares to follow the instructions here given can be assured of a complete eradication of wax moths in two seasons. These instructions apply only

XUM

to the north central states and Canada. I can not speak of southern conditions. I can assure you that I have had bitter experience with the pests, and am now, and have been for some years, completely free from them. At the end of the season scrape and clean all extracting frames, spacing them not more than nine in a ten-frame hive, being sure that they do not touch each other. Pile them on a tight board as high as convenient with a double thickness of newspaper between each hive body, cutting a large hole in the center of the newspaper. On top of the pile of supers, lay a piece of cardboard to hold the di-chloricide, using a teacupful of the crystals for every twenty supers. Cover everything up tight and forget it. In the spring the combs smell a little, but one day in the fresh air and they are all right. It is economical to buy the di-chloricide in 5-pound containers.—Joseph M. Barr, West Allis, Wisconsin.

• • •

Insulating the Telescope Cover

The corrugated-board box of the one-pound package of brood foundation, when made empty, is practically an exact size insulation for insertion between the galvanized iron part and the wood part of the standard telescope hive cover. This corrugated pasteboard material is an ideal insulation material for maintaining a more uniform temperature in the hive. When this material is used, it is well to make some distinguishing marks on the underside of cover, such as "paper insulation," or just a large letter "P," or the letters "INS" would be all right. This plan is best adapted when assembling new hive covers. However, it is probable that it would pay to remove the metal part of covers of old hives and insert this material, especially if there is some idle time during winter months when there is little to do. It is quite often a restful diversion for the hobbiest to get in his shop and tinker with his apiary equipment. Insulating hive covers would be an interesting tinkering job and one of value.—H. L. Rushing, Nashville, Tennessee.

• • •

A Backlotter Makes Good

The queen in the hive shown in Fig. 1 had brood in three hive bodies during fruit bloom—a total of about 20 frames. I put the third hive body on last March for protection against moths. While this

Fig. 1.—Not so bad for a backlotter and hybrid queen.

is no record-breaker it represents the most honey I have ever secured from one colony in one season, in the twenty-two years during which beekeeping has been my hobby. On July 11, I looked in the top super which was the last put on. It was packed with honey and should have had another, but I didn't have the time nor energy. With forty other colonies to attend to in my spare time I figured that was

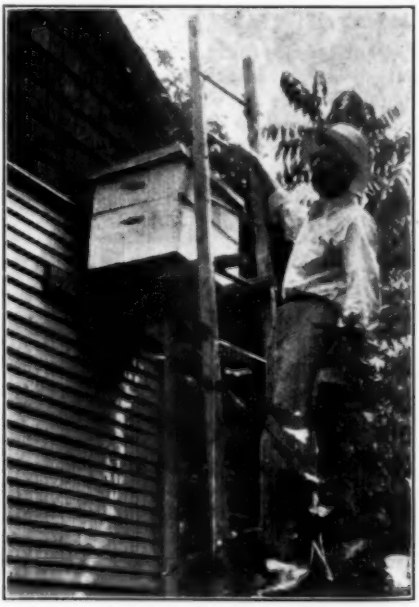


Fig. 2.—Getting them out of a house.

exacting too much from a 67-year-old man. Fig. 2 shows how I got them out of a house (my first attempt). I can thank the late George S. Demuth for a lot I know about beekeeping. He was my friend and neighbor back in 1914. He showed me how to find and clip queens, how to shake swarms, and how to care for the bees. Mrs. Demuth and Mrs. Wells got pretty adept at hiving swarms, too, while we were away at work. It might be interesting to some of the older beekepers to know that I keep my bees on the same spot that the government apiary occupied before it was moved to Somerset, Md.—Eugene W. Wells, Chevy Chase, Maryland.

• • •

The Four Steps in Making a Sale

The first step in selling any product is to gain the attention of the person you hope to sell to. Honey is no exception to this rule, even though we beekeepers do sometimes make the mistake of thinking it is so good that it ought to sell itself. As a first step in the selling process, E. Fritzsche, of New Brunswick, New Jersey, has designed a large model of a straw skep, which he puts out beside the highway, where he also has a stand for selling honey during the late summer and fall. This, with several hives of bees in the open lot close by, serves to bring anyone even mildly interested in honey to a full stop. For the next step in making the sale, which consists in increasing the prospect's interest to the point where he will buy, Mr. Fritzsche has a glass observation hive which now claims the customer's attention, while the proprietor explains the mysteries of the hive, some interesting points of bee lore, and the fine qualities of honey. By this time the customer is generally ready to make a purchase. The third step consists in exhibiting the honey itself, thus bringing the business to a climax. There remains then only the fourth step—for by this time the customer can scarcely refuse to make a purchase of some kind. The fourth step consists merely in handing over the product and taking the money. Almost any beekeeper could work up an effective talk on the subject of bees and honey. He already has the facts—more facts than he can use, for it is not good policy to try to tell everything he knows on the subject.—W. H. Hull, Vienna, Virginia.

Taken at a beekeepers' meeting held at the home of A. J. Schultz, Ripon, Wisconsin, July 24, 1936. Starting from left on top row: Ed Hassinger, A. E. Walkow, M. J. Deyell, H. F. Wilson, M. G. Dadant. Lower row: H. J. Rhamlow and L. C. Dadant.

XUM

Gleaned by Asking

THE EDITORS

Late Swarming

Question.—What might cause swarming at this time of the year, September 9? I have had two recently, one on August 23, and the other on September 6. I had only two swarms in June, out of eight colonies.—J. C. Snyder, Ohio.

Answer.—We have received reports of swarming during late August and early September. This is not surprising, because the recent rains revived honey plants and they are secreting nectar. Colonies are unusually strong at the present time. In most instances swarming is caused by congestion within the brood chambers of hives. Beekeepers not realizing the intensity of the recent honey flow have not given their colonies enough supers. With the hot weather we have had colonies crowded for comb space in late summer and fall swarm almost as readily as they do during June and July.

When and Why Bees Gnaw Foundation

Question.—When examining our colonies lately we found one with the cells in nearly all of the frames in one brood chamber torn down to the bare foundation, ranging in patches from the size of a quarter to the size of the palm of one's hand. In some places on these patches the bees are building drone and queen cells. This colony was requeened last August and has done fairly good work this season. What could cause this condition and what should we do to remedy it? Our bees were inspected June 6 by the state bee inspector and he said that all were in fine condition.—Albert F. Withaur, New Hampshire.

Answer.—The condition described is one of the rare enigmas of some colonies for which there is no satisfactory explanation. Some colonies will treat all makes of foundation exactly alike, so that the trouble is not with the foundation, but with some peculiar freak which may be only temporary, on the part of the bees or some particular queen. The probabilities are that this freak propensity would not develop next season. We suggest that you try this same colony out with several different makes of foundation side by side next season and report results. The tendency to gnaw cell walls down to the foundation seems to be confined more to seasons when the honey crop is light, irregular, or when the flow stops entirely.

Poisoning from Spraying and Dusting

Question.—During June and the first half of July considerable numbers of larvae in the grub form, perhaps within a week of emergence, bloat up and literally force themselves out of the cells by their swollen size, and drop to the bottom-board. The bees drag them out. They are very white. To what cause do you attribute this? I am located in the midst of a heavy fruit growing section. There are at least 2000 acres of thickly planted orchards within flying distance of my bees; and spraying and dusting is done exclusively up until the first part of July. During that time scores of dead worker bees would be found dragged out of the hives each morning. Does this indicate spray poisoning?—Miles E. Miller, New York.

Answer.—Bees in the Hudson Valley are frequently killed heavily by poison dust and spray applied to the fruit trees. In early July this year I found several colonies in bad condition from this cause in Columbia County. Scores of dead worker bees were found dragged out of the hives each morning. In the case of spray poisoning the adult bees die in the field or in the hives and may be found in great numbers in front of and around the hives. In that case the brood is neglected and may die. Undoubtedly the larvae observed were the older larvae, which in their efforts to find food had crawled nearly or entirely out of the cells. It is not likely that they were swollen but appeared to be so, because they were large enough to fill the cells. Feeding larvae move almost constantly and starving larvae have often been observed to crawl and twist about in various positions. It is my opinion that this is a case of poisoning. The sure way to find out would be to send two or three hundred of the dead adult bees to Mr. J. I. Hambleton, Agricultural Research Center, Beltsville, Md., for diagnosis.—Answered by Geo. H. Rea, Extension Specialist in Bee Culture for New York State.

Removing Queen Excluders from Underneath Food Chambers During the Winter Months

Question.—I use deep food-chamber hives. Do you think it is necessary to remove queen excluders that I have underneath the food chambers this fall, when I get the bees ready for winter, or, should I leave the queen excluders where they are?—B. A. Smith, Pennsylvania.

Answer.—We make a practice of removing queen excluders during the winter months. One winter we left a few queen excluders under food chambers. Some colonies wintered all right with the queen excluders on. In some instances, however, the clusters of bees moved up into the food chambers above the queen excluders and the queens not being able to pass through the queen excluders per-

ished and consequently these colonies were either queenless or dead when we examined them in the spring. It is advisable to remove the queen excluders in the fall when the bees are prepared for winter.

Wintering Bees in Brooder House

Question.—I have an empty brooder house which I believe would be suitable for wintering bees. Late this fall I intend to move the bees into the brooder house, giving each hive a little protection by wrapping with newspaper and then leaving a few windows open for bees to fly out during warm days. Do you think this plan will work?—James B. Hickson, Michigan.

Answer.—While your proposed method of wintering your bees may seem feasible, we believe it would be inadvisable to winter your bees in a brooder house, because during warm days of winter some bees will leave the hives and fly out of the windows, or other openings, and will be unable to find their way back to the hives and will be lost. Beekeepers have tried to winter their bees in brooder houses, small buildings or barns. The trouble is that the temperature of any building above the ground fluctuates too much. It would be much safer to winter out of doors and pack each colony properly. It is essential that the bees be wintered in a sheltered place, away from the prevailing winter winds. A good windbreak means much in successful wintering. Some beekeepers winter their bees in cellars. Bee cellars should be absolutely dark. The temperature should range between 40 and 50 degrees Fahrenheit. For wintering a few colonies, a dark cool fruit cellar shut off from the main cellar, can be used to advantage. The entrances of hives should be left open and not screened. The bees should be placed in the cellar in late November following a good flight day and removed early in April the following spring.

Requeening in October

Question.—I have a few colonies with old queens. Do you think it would be advisable to remove these old queens and introduce young laying queens this fall? Are queens easily introduced late in the fall?—D. W. Silver, Indiana.

Answer.—Yes, it is possible to requeen late in the fall. As a matter of fact, queens appear to be accepted more readily in the fall than they are earlier in the season. At least, that has been our experience. It seems that colonies late in the fall are more docile, and, as a rule, are ready to accept young laying queens, especially at the time brood rearing normally ceases for the season. With no brood bees could not start queen cells. Young queens introduced quite late in the fall may start laying eggs and this will mean protracted brood rearing and more young bees for winter clusters. These young queens are likely to be in prime condition next spring.

What To Do With Laying Worker Colonies

Question.—I have two laying worker colonies. What is the best thing to do with them?—J. M. Collins, Iowa.

Answer.—As a rule, it does not pay to go to the trouble and expense of requeening laying worker colonies, especially if they are not up to normal strength. It is advisable to unite such colonies with queenright colonies. This can be done by placing the brood chamber containing the laying worker colony on top of the brood chamber of a normal colony, placing one thickness of a newspaper between the two brood chambers and perforating the newspaper with a few small nail holes so that bees in the upper hive may get some ventilation. The bees will gnaw away the newspaper and gradually become united. If the laying worker colony is strong and worth requeening, it may be induced to accept a queen, after two or three combs of emerging brood have been given. However, since package bees are so reasonable in price, it is usually more profitable to unite such colonies with others, and to make up this loss by means of package bees next spring.

Aluminum Paint for Hives and Bottom Boards

Question.—(1) I have heard that aluminum paint will lie over creosote. If this is true, has any one tried it, and would it be worth while? (2) Could bees be helped to maintain location by distinctive painting on entrance cleat, front bottom-boarl, or stand?—P. W. McNeil, Pennsylvania.

Answer.—(1) The Bee Culture Laboratory at the University of Louisiana, Baton Rouge, La., has determined that aluminum paint will wear better, both North and South, than ordinary white lead or lead paint containing a little zinc. We don't know whether the aluminum paint could be placed over the bottom-boards covered with creosote. If any of our readers know, will they kindly inform us? (2) Painting the entrance boards or entrance blocks a different color will help not a little in enabling bees to distinguish their entrances. Where hive entrances are close together, like in a building, such as a house apiary or where hives necessarily have to be placed very close together, painting the hive fronts different colors enable the flying bees to locate their entrances better than where there is one color used throughout. Experiments have shown that when a red or blue is changed the bees of the old red or blue will follow the color.

XUM

Talks to Beginners

M. J. DEYELL

Beginners, especially those of you located in cold climates, are doubtless concerned about wintering your bees successfully. Wintering is somewhat of a problem. However, when the principles that underlie success in wintering are understood and applied, the problem is not so difficult as it may seem.

In the northern states and Canada very little if any surplus honey is stored, as a rule, during October. Last fall was an exception, in that a rather late honey flow, beginning about the middle of October and lasting for a week or ten days, occurred in regions where aster was plentiful. The weather was just right for nectar secretion. Bees worked like they do in midsummer. They stored a considerable amount of nectar. Following this honey flow cold weather set in and the bees were unable to ripen the nectar properly. On top of this, the long cold winter did not permit normal winter flights. This combination of unfavorable conditions resulted in dysentery and heavy winter losses. It is hoped that there may not be a repetition of these unfavorable conditions this coming winter.

How Bees Cluster in Winter

Some people believe bees hibernate during winter. This is not the case. Others think that bees enter a semi-dormant condition. This is nearer the truth. As a matter of fact, each colony of bees forms a winter cluster, which is one of the most marvelous phenomena in all nature.

As soon as the temperature of the interior of the hive containing the colony reaches 57 degrees, the bees begin to form a cluster. The outer rim or shell of the cluster consists of bees clustered tightly together with their heads facing toward the center of the cluster. The inside, or central part of the cluster, consists of bees clustered more loosely and moving about. The bees cluster on the combs in the hive. The upper part of the cluster envelops the honey in the combs. The lower part of the cluster is formed over the empty cells which usually occur in the lower portions of the combs. As the winter advances and as the honey is consumed, the entire cluster moves slowly upward on to fresh honey. The more active bees in the middle of the cluster generate heat by fanning their wings and by muscular activity. The bees on the rim or shell of the cluster form an almost perfect insulation that enables them to retain a large percentage of the heat generated by the bees in the center of the cluster. At no time while bees are clustered does the temperature in the center of the cluster go below 57 degrees, although the

At the left, a friction-top pail with its cover pierced with holes; at the center, pail filled with syrup and inverted over tops of frames; at right, pail and top of brood-chamber warmly covered both to keep the syrup warm and to conserve the colony's warmth. Outer cover should be placed on top.

temperature outside may go higher. As winter advances the bees in the outer rim of the cluster slowly exchange places with the bees in the interior of the cluster, presumably to bring about a fair division of labor. It seems doubtful if it is known how often during the winter the bees on the outside of the cluster exchange places with the bees on the inside of the cluster. The duration of these labor shifts may depend somewhat on the size of the cluster and intensity of the cold weather. It is obvious that a large cluster of bees is better able to withstand the rigors of a severe winter than a smaller cluster. As our knowledge of the marvels of this winter cluster increases, it is easier to understand why the three essentials of successful wintering, viz., populous colonies, an ample amount of good stores, and adequate protection from the cold, are so important.

Don't Scrimp on Winter Stores

A few years ago a commercial beekeeper in Ontario told me about a back-lot beekeeper in his vicinity who tried to winter his bees on scanty rations. Late one fall this commercial beekeeper asked the back-lot beekeeper if he had his bee work about finished for the season. The back-lotter said, "Yes, I have my work about wound up, all but extracting the buckwheat honey from the brood chambers of my hives." The commercial man said, "But you are going to get this honey extracted out of the brood chambers, aren't you?" "Oh, yes, you bet I am," replied the back-lotter. This small beekeeper had been so scotch with his bees that most of the colonies died during the winter and early spring, and what did manage to survive usually built up on the honey flow instead of for it. Of the three wintering requirements already mentioned, namely, populous colonies, ample winter stores of good quality, and adequate protection against the cold weather, the matter of ample stores of good quality for each colony appears to be the most important.

Food Chamber Solves Food Problem

The majority of beekeepers throughout the country are coming to see that the proper use of the food chamber solves the food problem, simplifies apiary management and helps to insure successful wintering, also larger crops of honey. For the benefit of beginners unfamiliar with the food-chamber, it is simply a regular shallow or deep extracting super of honey reserved for each colony and placed on each brood chamber, which brood chamber may also contain some honey as well as brood. This means that each colony is wintered in a two-story hive.

A colony in a food-chamber or two-story hive is likely to form its winter cluster in such a manner that the center of the cluster, during the early winter, occurs between two sets of frames. In other words, the cluster may cover the lower portion of the center combs in the food chamber, also the upper portion of the center combs in the lower hive, or brood chamber proper. Such a colony can more easily move laterally on to new honey when necessary during the winter. During very cold weather the cluster moves upward. Hence the importance of having the combs in the food chamber well filled.

Each colony wintered out of doors should have at least 45 or 50 pounds of honey for winter and spring stores. A lesser amount may be needed during the winter, but the amount recommended is likely to supply each colony with ample stores during the early spring as well as winter months.

When Feeding Is Necessary

In the event that colonies are short on stores combs of honey or sugar syrup may

(Continued on page 636.)

This apiary is well protected on the north and west by a natural windbreak of trees.

American Honey Institute Notes

Guest Editor,
Prof. R. E. Foster,
State Apiary
Inspector,
Gainesville,
Florida.

Five Out of Eight Call for Honey

Bakery trade journals continue to suggest honey in bakery formulas. I have before me a clipping from a recent "Bakers' Helper," one of the largest and best technical bakery journals. This clipping shows formulas calling for honey, molasses, and corn syrup. Out of this group of formulas, five call for honey, one for corn syrup, and two for molasses. Before the American Honey Institute began to popularize honey these formulas would all have been for the use of corn syrup and molasses.

The continued suggestions for the use of honey by the bakers' trade journals indicate that there is a growing demand for bakery goods in which honey is used. This demand has been brought about by the Institute's consumer educational program which keeps the consumer honey-minded, with the result that the bakers all over the country are using an enormous amount of honey. **This has made a market for amber honey.** As a matter of fact, numbers of beekeepers have told me that their dark honey was sold long before the light honey, and at a price nearly equal to that received for the light honey. This demand will continue as long as the Institute keeps up this program.

New Material

Two most interesting leaflets containing suggestions on the use of honey may be secured free from the American Honey Institute, Madison, Wisconsin. One, on the use of honey in canning, will be of particular interest to those who preserve their own fruits and vegetables. **The other suggests many ways to use Comb Honey.**

"Neglect"

Why is it that so small a percentage of the beekeepers support the American Honey Institute? There is no doubt but what the Institute is the best and most economical source of advertising that the honey producers can find. A good many years ago one of the problems discussed at beekeepers' meetings was "How can honey be nationally advertised?" Different plans were advanced, some were tried—only to fail—but it was the hope of these beekeepers to some day have a means of advertising honey as it should be. Today, we have this vision realized in the American Honey Institute. Why not support it?

I believe that the answer is in the one word "neglect." That word covers a multitude of sins. Judging from the contacts I have made here in Florida, I am sure that there are very few beekeepers who are not willing to support the Institute. Nearly every honey producer, when approached in regard to the Institute, will answer, "Sure, I will gladly give the Institute one dollar a ton, either in honey, or money, on the honey I produce." **But, the majority never do it.** Their intentions are good, but they **neglect** this most important thing. Sometimes the excuse is made that they did not know where to send the honey or money. A plan should be worked out to extract these donations from the beekeeper with the minimum of inconvenience and expense to both sides. It might be well to increase the number of honey receiving stations which should be located to the best advantage.

For several years my work has put me in touch with many beekeepers, and I have found them to be a fine class of people. They are not the kind who expect something for nothing, or expect to receive benefits from the work of others without doing their share. I do not believe I have ever met a beekeeper who, if I invited him to go on day's fishing trip, would expect me to paddle the boat all day while he caught fish. No, sir! He would want to paddle a part of the time so that I could fish. A large number of you honey producers are allowing a few to paddle the American Honey Institute's boat while you catch the "fish."

Another Golden Wedding Anniversary in The A. I. Root Co.

Mr. and Mrs. J. T. Calvert, taken on the occasion of their golden wedding anniversary.

Something over fifty years ago when I was making eyes at a pretty girl, my sister Maude remarked, "Well, he can get married if he wants to and have a big family of children and grandchildren, but I am going to be an old maid and raise up an adopted child." She little thought then that she would have three times as many grandchildren as I, of her own blood.

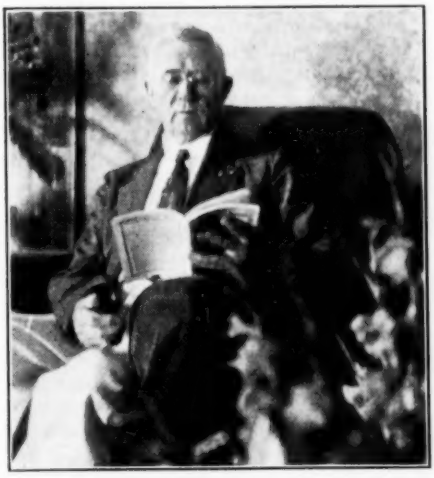
Well, I capitulated, as Dr. C. C. Miller said at the time, to a pair of black eyes that have been watching after me for fifty years and more. See announcement in the January Gleanings for 1935, page 45, of our golden wedding anniversary. Little did my sister Maude, when she made that remark of being an old maid, think that she would "capitulate" as I did, not to a pair of black eyes, but to a fair-haired blonde with rosy cheeks, a handsome young fellow recently from Canada where rosy cheeks and blondes predominate. Now John (J. T. Calvert) was not only good to look upon, but he was good inside and out, of English and Irish stock.

Maude's father had discovered John before she did. He came to this country in 1881 to learn about bees and then go back to Canada. John was so industrious and capable that A. I. Root advanced him from one position to another until he became treasurer and general manager of the organization, a position that he held until he resigned in 1922 in favor of a younger man, H. H. Root, youngest son of A. I. Root. Mr. Calvert has been and is now Secretary and Auditor, a position that is enough for one man without the additional duties of General Manager, of The A. I. Root Company.

"J. T.," as we call him around the plant, is a man of few words. He is seldom seen at bee conventions because his work is not along educational lines. He is a man of figures and facts. He has a wonderful memory which serves him well as Auditor of the company.

When it comes to facts and figures and the general history of The A. I. Root Company, he is a veritable encyclopedia. He is like George Demuth, a man who not only knows but remembers with an almost uncanny accuracy.

There have been four wedding celebrations in the A. I. Root family of 50 years and over: the golden wedding, or 50th,



"J. T." in his favorite corner reading his favorite magazine, "The Readers' Digest."

of Mr. and Mrs. A. I. Root, in 1911; the 60th, ten years later; December 15, 1935, Mr. and Mrs. E. R. Root celebrated their 50th anniversary, and this year Mr. and Mrs. Calvert celebrated, with all five grandchildren present, three from the Pacific coast and two from the Atlantic coast, who gave the company a concert of old songs.—E. R. Root.

XUM

Just News

The American Honey Institute is making the biggest drive that has ever been made for memberships. They have sent out over 20,000 letters to beekeepers, queen breeders, and others. They are going to try to make the annual report of the American Honey Institute the most important directory of beekeeping agencies in the United States. It is planned to include in the next directory a list of all beekeeping specialists, chief apiary inspectors, and their chief deputies.

•

Special attention is called to the "Honey Harvest Festival," October 25-31, sponsored by the American Honey Institute. Drop a postal card to the Institute immediately requesting their Honey Harvest Festival folder, which contains many helpful suggestions on making a success of this Honey Harvest festival week. The "Festival Series," which consists of 25 pieces of printed matter on various phases of popularizing honey, are available at the small cost of mimeographing and postage for mailing.

•

We have just received from the U. S. Department of Agriculture, Washington, D. C., a new circular, No. 392, entitled, "Diagnosing Bee Diseases in the Apiary," by C. E. Burnside, assistant apiculturist, and A. P. Sturtevant, associate apiculturist, Division of Bee Culture, Bureau of Entomology and Plant Quarantine. This circular covers the entire field of brood diseases, also diseases of adult bees in a comprehensive manner and is written in language the layman can understand. It is for sale by the Superintendent of Documents, Washington, D. C., at 5 cents per copy.

•

"Canada may well be called a 'land of honey', having a wealth of nectar and pollen-producing plants. Apiculture is carried on in all provinces, and honey production during 1935 amounted to 24,284,400 pounds, a slight gain over the output in 1934. During the last five years Canada's honey production has increased by more than 30 per cent; production in 1930 amounted to 18,459,972 pounds. Canada's honey industry enjoyed its greatest growth during the ten-year period, 1920 to 1930, the number of hives increasing from 185,530 to 279,453, and production from 6,370,300 pounds to 18,459,972 pounds. In 1920 the average yield per hive was about 34 pounds and by 1930 it had risen to 66 pounds per hive. The most notable development in the decade was the great increase in both the number of hives and the production of honey in western Canada. During 1920 the provinces of Ontario and Quebec produced nearly 95 per cent of Canada's honey, while the prairie provinces—Manitoba, Saskatchewan and Alberta—accounted for only two per cent. Ten years later the prairie provinces produced 16 per cent of the Dominion honey."—Taken from "Canada Week by Week," a news letter issued by the Canadian Government at Ottawa.

•

A clipping from a recent issue of the Philadelphia Evening Bulletin reads as follows: "The biggest bee hive in the world, the home of myriads of Tasmanian black bees, has recently been found at the top of an enormous eucalyptus tree in an Australian forest. Shaped like the usual hive, it measures 21 feet across, is more than 36 feet high, and weighs nearly a ton. About 7000 pounds of a special medicinal honey were extracted from it, which if sold would fetch from $1750 to $2000."

•

An excerpt from a letter by Wm. Nagel, manager of Crockett Hotel, San Antonio, Texas, to E. R. Root, reads as follows: "When I last had the pleasure of seeing you I told you I would write you giving you the rates of our hotel. Our rates are as follows: 1 person, $1.50, $2.00 and $2.50; 2 persons, $2.50, $3.00 and $3.50; 3 persons, one double and one single bed, $4.00; 4 persons, two double beds, $5.00. All rooms with private bath."

•

The attendance at beekepers' field meets this year has been unusually large. The discussions and demonstrations have been

(Continued on page 636.)

BUY AND SELL HERE

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

HONEY FOR SALE

The reliability of honey sellers is not guaranteed, although strict references are required.

CLOVER honey. Sample, 10c. K. A. Gallant, Meridian, N. Y.

CHOICE white clover honey in 60-lb. cans. J. F. Moore, Tiffin, Ohio.

CLOVER, comb and extracted. Howard Grimble, Holcomb, N. Y.

FOR SALE—New comb and extracted honey. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

WHITE clover comb and extracted honey. Porterholm Apiaries, Adrian, Mich.

FANCY new crop white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

CHOICE white clover comb and extracted honey. Lewis Klaty, Carsonville, Mich.

CHOICE clover honey, case, $9.00. Sample, 15c. Martin and Fuller, Owosso, Mich.

EXTRACTED honey, any kind, any quantity. H. Blitz, P. O. Box 3438, Philadelphia, Pa.

ORANGE, palmetto, or amber honey in new sixties. Peter W. Sowinski, Fort Pierce, Fla.

WELL-RIPENED clover honey in new 60-lb. cans and cases. Sample on request. B. B. Coggshall, Groton, N. Y.

FOR SALE—Finest quality and whitest comb honey in years, also white extracted. N. B. Querin & Son, Bellevue, Ohio.

NO RAIN—Our extracted clover honey is exceptionally fine, heavy bodied. Case or car. J. N. Harris, St. Louis, Mich.

TUPELO HONEY—Will not granulate. Barrels and 60-lb. cans, 7 and 8 cents per lb. Anthony Bros. Honey Co., Apalachicola, Fla.

OUR 1936 crop of Michigan clover honey is now ready for the market. Write us your requirements. E. D. Townsend & Sons, Northstar, Michigan.

HONEY PACKERS—Write us for prices and samples on California and western honeys. We stock all varieties. Hamilton & Company, 108 West Sixth St., Los Angeles, California.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

WHITE clover extracted honey. Harry T. Gable, Romulus, N. Y.

CHOICE white clover honey in new 60's. W. H. Mays, Goshen, Ind.

NEW white clover comb honey. Charles Guhl, Route 2, Napoleon, Ohio.

CHOICE white clover honey in new 60's. Sample, 15c. Noah Bordner, Holgate, Ohio.

NEW crop white extracted, case or ton lots. Sample, 10c. Harry C. Kirk, Armstrong, Iowa.

CHOICE quality extracted clover honey, 7½c lb. John Bour, 81 West Davis St., Tiffin, Ohio.

EXTRA QUALITY heavy clover extracted, case or ton. Scott's Honey Farm, La Grange, Indiana.

FOR SALE—Choice white clover honey. Ralph Hibbard, 131 Benedict St., Watertown, New York.

FOR SALE—Five tons clover honey; new sixties, $8.40 per case. Lewis Bowsky, Brown City, Mich.

NEW crop finest clover honey in new 60-lb. cans. Price on request. Sample, 10c. H. B. Gable, Romulus, N. Y.

CLOVER, comb and extracted in new 60-lb. cans. Send for sample and price. A. A. French & Son, Theresa, N. Y.

FOR SALE—Fancy white clover honey in 60-lb. cans, 8c lb. Sample, 15c. Jos. H. Hoehn & Sons, Ottoville, Ohio.

FINEST QUALITY white clover honey, $8.40 per case, 120 lbs. net. New cans. Sample, 10c. W. J. Manley, Sandusky, Mich.

HONEY FOR SALE—All kinds, any quantity. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

FOR SALE—Clover honey, 8c per lb.; light amber, 7c per lb., in new 60-lb. cans. Sample, 10c. Geo. M. Sowarby, Cato, N. Y.

CLOVER extracted or comb chunk honey, in 5-lb. pails, $6.00 per dozen. Extracted, one 60-lb. tin, $5.00. F. L. Barber, Lowville, N. Y.

WHITE clover honey in 60-lb. cans, at 8c per lb. Write for price on large quantities. Sample, 15c. F. W. Summerfield, Grand Rapids, Ohio.

FOR SALE—New crop clover honey, in 60-pound cans, new cans and cases. Can to tons. Sample free. W. S. Earls & Son, New Canton, Illinois.

CLOVER-BASSWOOD honey, blended by the bees, well ripened, heavy and fine taste, 7c lb. 60-lb. cans only. Discount for 10 or more cans. Sample, 15c. M. Noack, 3958 Polk St., Chicago, Ill.

17,000 pounds wonderful quality clear white clover extracted honey, heavy body, fine flavor, suitable for bottling. New cans and cases. Case lots, 8c. Prefer to sell without cases. Buyer to send truck to apiary. Write for truck load price. Valley View Apiaries, Savanna, Ill.

XUM

MICHIGAN white extracted in sixties. M. H. Hunt & Son, Lansing, Mich.

WHITE clover extracted, 8c; extra light amber clover, 7c. Sample, 15c. A. J. Wilson, Hammond, N. Y.

CLOVER honey, exceptionally fine; also amber. Full cans. Write Frank Rasmussen, Greenville, Michigan.

BEST quality extracted light honey, 7c per lb. in 60-lb. cans. Sample, 10c. David Conn, Roaring Branch, Pa.

QUALITY white clover extracted honey in new sixties. State your requirements. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE—White clover extracted honey, in new cans. Prices on request. Sample, 10c. Frank R. Parmelee, LeRoy, N. Y.

NEW crop fine white clover honey in new 60-lb. cans. Price on request. Sample, 10c. Meyer Toom, Route 4, Knoxville, Iowa.

EXTRACTED in new 60's, white clover, 8c; buckwheat, 7c; No. 1 clover comb, $3.50; buckwheat, $3.00 per case. F. J. Smith, Castalia, Ohio.

FOR SALE—Finest quality white clover extracted in new 60's at market price. Packed in 5-lb. pails at small extra charge. Carlton D. Howard, Ovid, N. Y.

HEAVY fancy white comb, $3.75 case; 12-oz., fancy white, $3.50; No. 1, $3.25; mixed, $3; white clover extracted, 8c. Light amber, 7½c. C. B. Howard, Geneva, N. Y.

NEW crop clover honey, extra white and heavy, in sixty-pound new tins, at 8c per lb. Write for prices on large quantities. W. D. Achord, 2604 N. Main St., Findlay, Ohio.

VERY choice white clover honey, very light in color and heavy body, exquisite flavor. Sample, 10c, which will be applied on first order. By case, ton or carload. Wm. C. Wahl & Sons, Clayton, New York.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyers' financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—Dark honey, also capping melter honey. Edw. Klein, Gurnee, Ill.

WANTED—White, amber, and overheated honey. State price. C. Jankowski, Russell, Ill.

WANTED—Car lots or less extracted honey. Mail sample. J. Hassan, 1700 N. Franklin St., Philadelphia, Pa.

WANTED — Comb, chunk comb, extracted honey, all grades, any amount. Central Ohio Apiaries, Millersport, Ohio.

WANTED—Carlots of honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

CASH PAID FOR COMB AND EXTRACTED HONEY. Mail samples and best price. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—Car lots or less; clover extracted honey and light amber, new cans. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

FOR SALE

TRAILER, handiest thing on earth, $100. Rev. McKee, Alpine, N. Y.

FOR SALE—45-frame extractor, good condition. Wm. Bigel, Barrington, Ill.

YOUR wax worked into deep cell medium brood foundation, for 15c per pound. Fred Peterson, Alden, Iowa.

FOR SALE—New 4-frame Root mutiple reversing extractor, 12" pockets, at bargain price. Diamond Match Co., Chico, Calif.

FOR SALE—20-frame Simplicity, 2 and 6 frame reversible extractors, 1½-horse gasoline engine. F. D. Chamberlain, Medina, Ohio.

HOFFMAN FRAMES, mail order brand, accurately made, $35 per 1000, f. o. b. Medina; while stock lasts. The A. I. Root Co., Medina, Ohio.

WAX worked into comb foundation, accepted in trade for supplies or bought. Write for our proposition and shipping tags. Walter T. Kelley, Paducah, Ky.

BEST QUALITY soft white pine Hoffman frames, $30.00 per thousand. Complete line of bee supplies manufactured by us. All prices the lowest. Free catalog. The Walter Kelley Co., Paducah, Ky.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

SPECIAL — While stocks last. We have a limited supply of slightly damaged copies of the previous edition of "Starting Right with Bees." Price, 30c postpaid. We also have some damaged copies of the new A B C and X Y Z of Bee Culture, which are priced at $2.00. The A. I. Root Co., Box G-7, Medina, Ohio.

HIGH WINDS COMING—Bee prepared. Equip your hives with Whitehouse Bee-tight Hive Cover Holder. Speed up bee work. Eliminate rocks. Outer cover can not blow off, and it fits down tightly against inner cover which operates as easily with attachment as without —only ½ minute to install this device, nothing more to do. Whitehouse Bee-Tight Hive Cover Holder puzzles meddlers and fits metal top covers only. Try one and be convinced that you need this attachment on all of your hives. Sent prepaid upon receipt of price of 15c each; one dozen for $1.50. Patent applied for and manufactured by R. S. Whitehouse, 275 LaGrange St., West Roxbury, Mass., U. S. A.

BEES AND QUEENS FOR SALE

ITALIAN queens. W. G. Lauver, Middletown, Pa.

QUEENS, while they last, 50c each. Packages for 1937. J. M. Cutts & Son, Rt. 1, Montgomery, Alabama.

GOLDEN three-banded Italian queens, 50c each, until November 1. Citronelle Bee Co., Citronelle, Alabama.

YOUNG three-band Italian queens at market price, mailed anywhere any time. D. W. Howell, Shellman, Georgia.

CAUCASIAN package bees. Booking orders now for 1937 delivery. P. B. Skinner Bee Co., Greenville, Alabama.

"SHE-SUITS-ME" queens. See page 186 of March number. Send for price list. Allen Latham, Norwichtown, Conn.

READY to book your order for Caucasian bees and queens, 1937 delivery. Lewis & Tillery Bee Co., Greenville, Alabama.

STOP! LOOK!—Genuine three-banded Italian queens, 50c each. Satisfaction guaranteed. Alamance Bee Company, Geo. Elmo Curtis, Mgr., Graham, N. C.

THREE-BANDED Italian queens of finest quality reared during goldenrod and aster bloom; one, 60c; two or more, 50c each. White Pine Bee Farms, Rockton, Pa.

GOLDEN Italian queens that produce workers, very gentle to handle, good honey gatherers, health certificate, satisfaction guaranteed. Select tested, $1.50; tested, $1.00; untested, 50c. D. T. Gaster, Rt. 2, Randleman, N. C.

CAUCASIAN bees and queens. We are booking orders now for 1937 delivery. Send us your orders early and name delivery dates wanted. Shipments start about April 5. Thanks to our many 1936 customers. Bolling Bee Co., Bolling, Alabama.

A NEW SERVICE FOR BEEKEEPERS—Three-banded Italians, mailed in our special introducing cage. Guaranteed to safely introduce to normal queenless colonies, or replacement free if our directions are followed. One to five, 55c each; five or more, 50c each. Silver Run Apiaries, Phenix City, Ala.

LIGHT 3-BANDED ITALIAN QUEENS. We are one of the largest growers of queens in the United States, producing 100 queens or more daily. We ship only young, laying queens and guarantee them to be purely mated and satisfactory to you. You are the judge. Price, 50c each. To dealers, 42½c each. We need dealers in many localities. The Walter T. Kelley Co., Paducah, Ky.

DAIRY GOATS

DAIRY GOAT JOURNAL, Dept. 618, Fairbury, Nebr. 50c yearly; 3 months, 10c.

ELECTRIC PUMPS

WORLD'S SIMPLEST ELECTRIC PUMP—Only one moving part. Nothing to wear or cause trouble. 28-foot suction lift. Operates cheaply. Money-back guarantee. Thousands satisfied users. Write for free catalog. Dept. 2510, Micro-Westco, Inc., Bettendorf, Iowa.

SITUATION WANTED

EXPERIENCED single young man wants apiary work, not in United States. Eight years' experience in commercial apiaries of America and British Dominions. Have a legal passport. Gilbert Anderson, Palmerston North, New Zealand.

MISCELLANEOUS

WANTED—Exchange printing for honey. Snapp Printing Co., Greeneville, Tenn.

FINE racing Homer and splashed Carneaux pigeons at $1.00 per pair. Will exchange for honey or small extractor. Harry Brown, Box 255, Vermont, Illinois.

THE BEE WORLD—The leading bee journal in Great Britain, and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingworth, The Way's End, Foxton, Royston, Herts, England.

QUEENS

Good Yellow Italians. The kind that produce bees that are gentle, hardy, and great honey gatherers.

Untested $0.50
Tested $1.00

W. O. GIBBS COMPANY
BROOKFIELD, GA.

ITALIAN QUEENS
Orders booked now for spring delivery. Subject to prevailing spring prices. 10% with orders. Write us for information.

Shasta Apiaries
SHASTA, SHASTA CO., CALIF.
Express Office, Redding, Calif.
GEO. W. MOORE F. W. CHAPMAN

A Good Rule to Go By

Buy your bees and queens from

ALABAMA APIARIES
MT. PLEASANT, ALA.
Queens, 50c.
Packages, $1.95 and $2.55.

Honey gate for 60-lb. cans. Screw it on your can of honey or other liquid and you are ready to fill jars or pails. It eliminates splashing and dripping, saves time and labor. Works well with hot or cold liquid. Well made, nickel-plated. No sticky floors to clean up. Measure across top of cover for size wanted. For 1¾ to 3 inch covers. Only $1.00. plus postage. Weight, 1 lb. **ERNEST FAHLBECK, 406 South Springfield Avenue, Rockford, Ill.**

"THE 'QUEEN' OF THE CROP"

We don't have to tell you how important a queen is. But we WOULD like you to know that we have quality queens and can deliver them promptly.

THE PUETT COMPANY
HAHIRA, GEORGIA
"Where Satisfaction is a Certainty."

XUM

TALKS TO BEGINNERS

(Continued from page 629.)

be fed to make up the food deficiency. A standard comb well filled contains between five and six pounds of honey, so on this basis it is not very difficult to determine the amount of food required.

In making sugar syrup use only the best grade of granulated sugar. The syrup should be mixed in the proportion of two parts of granulated sugar to one part of water, either by weight or measure. Granulated sugar should be stirred in the water which is heated to the boiling point. The stirring should be continued until all of the granules are dissolved. It is an advantage to use tartaric acid in making the syrup. The acid prevents the syrup from granulating in the cells of the comb, and it also prevents the holes in feeder cans from being granulated shut. The acid comes in powdered form and can be mixed with the sprup as it is made. About three-quarters of an ounce of tartaric acid should be added to each 25 pounds of sugar used.

A Convenient Bee Feeder

There are various types of feeders on the market, but the 10-pound friction-top pail seems to be the most convenient. About 20 holes should be punched with a 3-penny nail in the lid of the feeder can. The syrup should be fed while warm. The pail of syrup should be inverted over the hole in the inner cover of the hive. This puts the syrup where the bees can get to it conveniently. If no inner cover is used the pail of syrup is inverted directly over the top-bars of the frames. In this case it is an advantage to place some pieces of burlap, or old sacks, over the top of the pails to retain the heat of the syrup so that it may be taken readily.. An empty super should be placed under the regular hive cover to protect the feeder can while the feed is being taken.

Value of Windbreaks

Colonies wintered out-of-doors in the northern states and Canada should be well protected from the prevailing winter winds, either by natural or artificial windbreaks. Where there are no natural windbreaks it is an advantage to build a high-board fence with the boards spaced at least one inch apart to break the force of the wind.

Packing for Bees Outdoors

Some beekeepers use double-walled hives with packing permanently built in, which requires no additional packing. Such hives save labor of packing and unpacking. Bees in single-walled hives may be packed in a large box that will permit from two to five inches of packing on the sides and ends and from four to eight inches on top. It is an advantage to have some bottom packing as well. A bridge or tunnel must be provided at the entrance of the hive so the bees can fly out on warm days during the winter. The box containing the hive should be made waterproof to keep the packing dry. Tarred paper may be applied over the box.

JUST NEWS

(Continued from page 632.)

above the average. Why so much interest and enthusiasm after a severe winter and a general drouth that will go down in history as one of the worst, is hard to explain, unless the country is coming back to normal. The Tri-State meeting at Delphos, Ohio, in the center of some of the best bee territory in the country was unusually good, both in attendance and enthusiasm. Over 250 were present. The second annual Wabash Valley Roundup, at Newport, Indiana, on September 12, had over 700 present—possibly the largest gathering of beekeepers that has been held in the country this year. Michigan had a series of field meets at three different places with an aggregate attendance of perhaps 500. Other meets in Wisconsin and New York were largely attended. The various county bee meetings in all the states drew larger crowds than formerly. Meetings at Brookville and Gates Mills, Ohio, had 150 and 200 respectively.

•

"A Study of the Production of Wax Scales and Comb Building," is the title of a paper by Clarence M. Gwin of the Baldwin Laboratories, Inc., Saegertown, Pennsylvania. The work was done under the direction of Prof. H. F. Wilson, of the University of Wisconsin, at Madison. Colonies of bees of about equal strength were placed in temperature controlled compartments in a greenhouse where the only food or water was provided by the author. One of the colonies was fed sugar syrup and the others honeys of different floral source. The colonies fed with various kinds of honey soon became filled with

(Continued on page 637.)

JUST NEWS

(Continued from page 636.)

feces and died within one and a half to two or two and one-half months, depending on the type of honey. The colony fed on sugar syrup continued to produce wax for a period of six months and showed no noticeable accumulation of feces. In general, the observation made concerning the secretion of wax scales and the process of comb building conform very closely to those made by Huber and Casteel. As had been previously noted by the author, bees do not confine themselves to wax scales that they secrete during the process of comb building but incorporate other surrounding material such as other combs, propolis, wood, etc. Many of the wax scales were lost in comb building as seen from scales with perforations on the bottom boards. It was noted also throughout the entire experiment that the wax scales of various bees varied greatly in size. The size variation was attributal to the location of the wax plates and the length of time the bees had been kept producing wax. Conclusion: Colonies fed either honey or sugar syrup produced wax without being fed pollen. Age is not necessarily a factor governing the production of wax. Bees persisted longer when fed sugar syrup than when fed honey, other factors remaining constant. Copies of this paper can be obtained from Clarence M. Gwin, Baldwin Laboratories, Inc., Saegertown, Pennsylvania.

For Over 50 Years

Beekeepers in many lands have been pleased with this most important tool in Beekeeping. Your Bingham Smoker is offered for sale by numerous dealers.

INSIST ON THE BEST

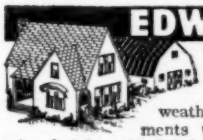
Manufacturers of a complete line of Honey Extractors, one for every requirement. Send for printed matter.

A. G. Woodman Company
GRAND RAPIDS, MICH.

TOO LATE FOR CLASSIFICATION

LIGHT comb honey, No. 1 and fancy, $3.00 and $3.50 per case. Extracted in 60's at 7½c per lb. H. R. Shelton, Parma, Michigan.

ELECTRICAL uncapping knives with transformer, 110-120 volts, 60 cycles, $14.00. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.



EDWARDS METAL ROOFS

Look better, last longer, cost less. Protection from fire, lightning, wind and weather. Send roof measurements today for money-saving price, freight paid. **Ask for Catalog 88.**

THE EDWARDS MANUFACTURING CO.
1033-1083 BUTLER ST. CINCINNATI, OHIO

FOR SALE

Pure Italian queens. Nothing but the best. Bright yellow and three-band. 50c each, subject to dealers' discount. You send for them, they go.

GRAYDON BROS.
Route 2. Greenville, Ala.

SEND US YOUR ORDER FOR LABELS.
THE A. I. ROOT CO., MEDINA, OHIO.

PACKAGE BEES

It will soon be time to order your bees for next spring. Write us.
Queens to October 31st: 50c each, 15% discount to dealers.

Garon Bee Co., Donaldsonville, La.

XUM

Closing the Season

Queens to November 1, 50c each; after November 1, 75c each.

Prepare now for a greater 1937 by arranging for your package bees in advance. Will have a larger supply to take care of your needs. No order too large or small. Write us.

YORK BEE COMPANY,
JESUP, GEORGIA
(The Home of Quality Products.)

MERRILL'S
PACKAGE
BEES FOR 1937

DEPENDABLE

MERRILL BEE COMPANY
BUCATUNNA, MISS.

CARNIOLANS
CAUCASIANS

A few of these fine queens still on hand for late requeening.
1 to 6, 60c each. Over six, 50c each.
Tested, $1.00 each.
ALBERT G. HANN, GLEN GARDNER, N. J.

PATENTS—Williamson & Walton
Attorney for The A. I. Root Co.
Munsey Bldg. Washington, D. C.

LAST CHANCE to

get good queens cheap for last minute requeening. November 1st the price goes back to 75c each. Let us supply your needs, and put your bees away right for the winter. We are now booking orders for 1937, so let us know what to reserve for you in the spring.

Thanking you who have made this our greatest year, we are mutually and cordially yours,

JENSEN'S APIARIES
MACON, MISS.

HONEY LABELS, THIRTY DESIGNS.
THE A. I. ROOT CO., MEDINA, OHIO.

HONEY WANTED

Carloads or less than carloads — Comb and extracted. Send us 8-oz. or larger sample when ready to ship, stating how cased, quantity can ship and when, and name lowest price will accept.

Honey Packers, Inc.
230 Park Avenue **New York, N. Y.**

Gleanings
in
Bee Culture

1 Year, $1.00

2 Years, $1.50; 3 Years, $2.00.
Foreign: 1 Year, $1.25; 2 Years, $2.00; 3 Years, $2.75.

Valuable Information Each Month on Marketing

A wrong quotation on price of your honey may cost you a number of year's subscriptions to this up-to-date magazine.

SEND YOUR RENEWAL NOW

HONEY
LABELS

30
FINE DESIGNS

The popularity of Root Honey Labels is shown by the large number of orders received daily. We are printing thousands of labels every day and working our printing plant to capacity.

YOU

should send for samples if you are not using Root Labels.

The A. I. Root Company
Medina, Ohio

Cypress Hives
Queens Bees

THREE-BANDED ITALIANS

If you have failed to requeen yet, better order them at once. We can mail all orders within twenty-four hours.

••

50c EACH
15% TO DEALERS

••

We can save you money on the most durable hive made. Let us mail you price list.

••

The Stover Apiaries
MAYHEW, MISS.

IMPORTED ITALIAN QUEENS

Our breeding stock recently imported from Italy. Better get those colonies in shape for winter by requeening now.

Untested queens .....$0.50 each
Tested queens .. . . 1.00 each
Breeding queens ..... 5.00 each

THE CROWVILLE APIARIES
Route 1. Winnsboro, La.

We are now booking orders for package bees and Montain Gray Caucasian queens for 1937. Write for free circular.

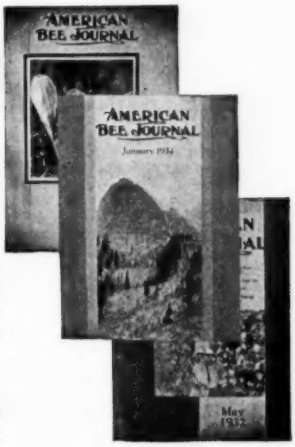
CAUCASIAN APIARIES
Brooklyn Alabama

12-Month Subscription with Bee Primer - - $1.00

American Bee Journal—monthly; published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey. SAMPLE COPY FREE.

Full 12-month subscription, with BEE PRIMER—22 pages, illustrated booklet to help the beginner—BOTH FOR $1.00. Combined with Gleanings in Bee Culture—both magazine and Primer, ONE YEAR, $1.60. This offer good only in the United States. Address—

American Bee Journal, Hamilton, Illinois



---*In the Market for a Quantity of Bee Supplies?*

.....WRITE NOW.....

The A. I. Root Company, Medina, Ohio

INDEX TO DISPLAY ADVERTISEMENTS

Alabama Apiaries 635
American Bee Journal.....639
American Honey Institute.....582
Calvert Apiaries 583
Caucasian Apiaries 639
Clark Spray Machine Co.....578
Crowville Apiaries 639
Dadant & Sons 584
Edwards Mfg. Co. 637
Fahlbeck, Ernest 635
Falconer Mfg. Co. 578
Garon Bee Co. 637
Gibbs Co., W. O. 635
Graydon Bros. 637
Hann, Albert G. 638
Hazel-Atlas Glass Co...Inside back cover
Honey Packers, Inc. 638
Hunt & Son, M. H. 579
Jensen's Apiaries 638
Kelley Co., Walter T. 583
Kitselman Bros. 578
Lotz Co., August 579
Merrill Bee Co. 638
Muth Co., The Fred W. 579
Puett Co. 635
Root Co., The A. I.....Back cover, inside front cover, 583, 639, 640
Root Co. of Chicago, A. I.....578
Root Co. of Syracuse, A. I.....578
Shasta Apiaries 635
Stover Apiaries 639
York Bee Co. 638
Williamson & Walton.....638
Woodman Co., A. G. 637